PUBLIC HEALTH REPORTS

In this issue

FEDERAL SECURITY AGENCY • Public Health Service

Combining a community health center physically with a hospital facilitates the joint use of expensive equipment and of scarce professional and technical personnel in providing a well-rounded health program for the community. There are other less tangible but very real benefits—for example, the confidence which is engendered among visitors to the health center before they may have occasion to become bed patients in the hospital proper. As these advantages become more widely recognized, more communities are combining their hospitals and health centers. An example of this arrangement is the new 75-bed facility at Xenia, Ohio, which serves Greene County's 38,000 people. Prior to completion of this project, the city had no acceptable beds, and hospitals in the nearest major city, 16 miles distant, were overcrowded. In the view shown, the separate health center entrance is on the left, the hospital main entrance on the right. The architect is Dan A. Carmichael of Columbus, Ohio.

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PUBLIC HEALTH REPORTS

Published since 1878

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50 years ago in Public Health Reports

THE December 19, 1902, issue of *Public Health Reports* carried a summary report on the international tuberculosis conference held at Berlin, October 22 to October 26, 1902. It was the first conference held by the Central International Committee for the Prevention of Tuberculosis, which had been organized at the international congress on tuberculosis at Naples in 1900. An international congress had also been held in London in 1901.

The report on the 1902 conference, written by the United States representative, Dr. J. M. Eager, of the United States Public Health and Marine-Hospital Service, indicated that the subjects considered included: the position of governments regarding the prevention of tuberculosis; the organization of dispensaries; precautions against the dangers of milk; tuberculosis during infancy; and protection of labor and prevention of tuberculosis. Quoting from the report:

"Dr. Alfred Hillier, of London, . . . expressed the belief that there are four great measures to which we must look for the prevention and cure of tuberculosis, namely: 1. Penalizing indiscriminate expectoration. 2. Introducing systematic notification of tuberculosis. 3. Insisting on efficient standards of ventilation and light for all factories, public buildings, and private dwellings. 4. The encouragement of the establishment of sanatoria for the two classes of tubercular cases, early curable cases, and advanced cases, and the treatment of phthisical cases in such sanatoria."

Von Baumgarten, of Tübingen, said that "the most direct way to fight tuberculosis was to attack the tubercle bacillus. If success could be attained in destroying this malicious parasite the world would be free from the devastation it produces."

In the discussion of compulsory notification of tuberculosis, Van Ryn of Brussels, "was of the opinion that, without notification in all countries, it would be impossible effectively to destroy the foci of infection. The objections to notifications are that it is against individual liberty and professional secrecy; that it disturbs the sick; and that as a consequence of notification tubercular patients lose their employment. . . . These objections should be set aside in view of the interests of the general public."

"In an address on the measures taken at Basel to prevent infantile tuberculosis, Prof. F. Egger, of Basel, Switzerland, drew the conclusion that, inasmuch as infantile tuberculosis often assumes manifestations in which treatment is generally unavailing, the most extended prophylaxis is of the greatest importance, and that the treatment of infantile tuberculosis ought to begin, as in adults, with the very first symptoms."

"At the close of the discussion Prof. Robert Koch made a long and interesting statement reaffirming the position he took at the London tuberculosis conference, to the effect that it has not yet been proven that man can be directly infected by the tuberculosis of animals. . . . Professor Koch said that for more than a year past he had gathered official reports of all tuberculous cases treated at German hospitals and coming under the note of the professors of pathology at German universities. Still he had not learned of a single case of primary tuberculosis of the intestines. He admitted that such cases appeared to be more frequent in England than in Germany. . . . He supported his argument by analogy to other infectious diseases, and declared that, in the whole literature of tuberculosis, he knew of no widespread prevalence of tuberculosis traceable to milk or meat."

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Published concurrently with this issue:

PUBLIC HEALTH MONOGRAPH NO. 7 . . . Identification of maladjusted school children.
Charles A. Ullmann.

42 pages. A summary and information on availability appear on pages 1219–1223.

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Reporting of Fetal Deaths in New York City

By CARL L. ERHARDT, B.B.A.

FOR MANY YEARS New York City has tacitly required reporting of fetal deaths at all periods of gestation by omission in its sanitary code of any qualifications as to the gestation age to be reached before reporting is required. Prior to 1938, "still births" were required to be reported within 36 hours of the event whereas live births were reportable within 10 days, but no further definition or distinction was indicated.

In 1937 the late Thomas J. Duffield, then director of the bureau of records and statistics of the New York City Department of Health, realizing that many physicians were failing to comply with the intent of the law, recommended that the code be revised to express more specifically the requirements regarding reporting of fetal deaths. He recognized that data which could be obtained only by mass reporting of early fetal deaths were of value in investigations of early pregnancy wastage and that these data would also provide a more nearly complete base for calculation of a puerperal mortality rate. Accordingly, in 1938 the board of health, with the advice of the obstetric advisory council to the commissioner of health and with the approval of the county medical societies and the New York Academy of Medicine, adopted a complete new section, defining fetal death and specifying signs of life as follows:

"The term 'fetal death' . . . shall mean a stillbirth or a fetus delivered at an abortion (spontaneous, therapeutic or induced), that is, a fetus born dead, including a fetus recovered at operation in a case of ectopic gestation, by cesarean section, and a hydatid or hydatidiform mole delivered spontaneously or by operation.

"The term 'born dead' shall apply to any fetus in which there was no sign of life, such as respiration, heart beat or movement of voluntary muscle, after complete separation (head, trunk and limbs) from the body of the mother, notwithstanding whether the cord was or was not cut or the placenta was or was not removed."

This is the first usage, within the writer's knowledge, of the term "fetal death" in legal reporting requirements. The revision antedates by 12 years the WHO recommendations that the term "stillbirth" be discarded in favor of the term "fetal death" in describing termination of pregnancy otherwise than in a live birth and that statutes require reporting of all fetal deaths regardless of gestation age (*1*).

The revision, together with a determined effort by the health department to familiarize physicians and hospitals with the intent of the law, produced immediate results. However, within a few years, it was seen that the physicians were still confused as to the intent of the law. The phraseology did not make obvious the expectation that all instances in which postabortal indications of pregnancy, even pathologically diagnosed, came to the physician's attention would be reported. In 1947, therefore, the sanitary code was revised to define a fetal death thus:

"The term 'fetal death' . . . shall mean any terminated pregnancy resulting otherwise than in a live birth and regardless of the period of

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Mr. Erhardt is director of the bureau of records and statistics of the New York City Department of Health. *This paper is based on one presented by him before the working group on natality statistics at the Public Health Conference on Records and Statistics in Washington, D. C., March 25, 1952.*

Table 1. Ratio of reported fetal deaths to 1,000 live births, by period of gestation, New York City, 1937–51

Year	Total	28 weeks and over	20–27 weeks	Under 20 weeks	13–19 weeks	Under 13 weeks	Unknown period
1937	47.5	26.3	9.1	11.7	----------	----------	0.4
1938	48.9	26.4	9.1	13.3	----------	----------	.2
1939	66.8	23.9	9.8	32.1	----------	----------	1.0
1940	74.4	23.6	9.1	40.1	----------	----------	1.6
1941	78.5	23.3	9.0	45.2	----------	----------	1.0
1942	75.9	21.8	8.8	44.3	----------	----------	1.0
1943	70.7	20.9	8.2	40.9	----------	----------	.7
1944	81.4	21.1	8.9	50.1	----------	----------	1.3
1945	80.5	20.2	8.9	50.0	----------	----------	1.3
1946	85.0	19.3	9.6	54.8	----------	----------	1.3
1947	82.2	17.9	8.9	53.5	12.9	40.6	1.8
1948	88.7	17.1	9.5	59.8	13.3	46.5	2.3
1949	92.1	16.4	8.7	65.2	13.9	51.3	1.7
1950	105.3	14.9	8.6	78.6	15.7	62.9	3.1
1951	110.3	14.8	8.5	82.0	14.5	67.5	4.5

gestation, and shall include a stillbirth, a fetus and fetal tissues, recovered at a curettage, delivered at an abortion or miscarriage (spontaneous, therapeutic or induced), at operation in a case of ectopic gestation, or by cesarean section, and a hydatidiform mole delivered spontaneously or by operation. The term 'fetus' . . . shall mean and include any of the above."

Direct reference to reports based upon laboratory examination was included for the first time: ". . . when such report is based upon pathological examination of tissues recovered at an operation such report shall be filed within fifteen (15) days of the operation," rather than within 24 hours as otherwise required.

Effect of Legal Changes on Reporting

The data in table 1 and figure 1 provide ready evidence of the immediate effect of the revisions of the sanitary code. The fetal death ratio to 1,000 live births rose from 48.9 in 1938 to 66.8 in 1939, a 37-percent increase in 1 year. The 1951 ratio of 110.3 to 1,000 live births is more than double that of 1939. The number of reported fetal deaths rose from 4,995 in 1938 to 6,831 in 1939 and has continued a rising trend since that year, reaching nearly 18,000 in 1951. But of more interest than the changes in the total volume are the changes, or lack of them, in groups of fetal deaths divided according to number of weeks of gestation.

The ratio of fetal deaths of 28 weeks' gestation and over to total live births has exhibited a consistent downward trend, reversed in only 1 year, 1944. By 1951 the ratio had declined by 44 percent from that of 1937, from 26.3 per 1,000 live births to 14.8.

No definite trend in the ratio of fetal deaths of 20 to 27 weeks' gestation to total live births is evident. Although the comparatively stationary ratio can be interpreted as lack of any change, it is also possible that a greater proportion of fetuses are carried forward toward term and that this number is compensated by an equal proportion carried beyond the nineteenth week into this interval.

Fetal deaths occurring before the twentieth week of gestation have increased from 48.7 percent of the total reported in 1939 to nearly 75 percent in 1951. It is from this group that the increase in both the number of reported fetal deaths and the ratio thereof to live births has resulted. It would, however, be a fallacy to conjecture any increase in early fetal deaths from these data; the rise is probably due entirely to increased reporting of the early deaths.

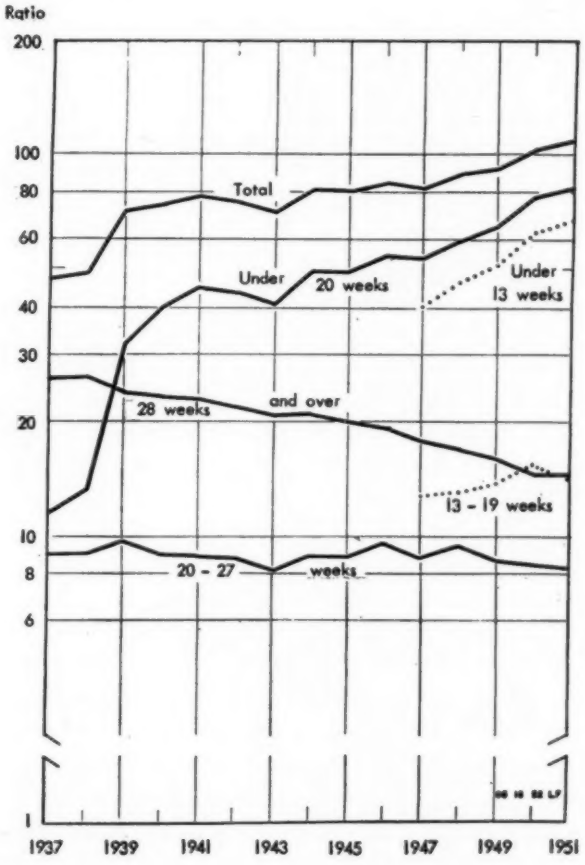
Unfortunately, data for finer subdivisions of this period of gestation are available only since 1947. Even in this brief period, however, considerable increase can be shown for fetal

deaths of 13 to 19 weeks' gestation and for those of less than 13 weeks. The ratio to live births for the latter group increased by 66 percent and for the former by 13 percent.

General Pattern of Fetal Loss

Data showing fetal deaths by 4-week intervals of gestation period were assembled for 1939, 1944, and 1950 to demonstrate by narrower

Figure 1. Ratio of reported fetal deaths to 1,000 live births, by period of gestation, New York City, 1937–51.



subdivisions of fetal life the improvement in reporting (table 2). Little success can be seen in obtaining reports of abortions during the first month. Because of the failure of the woman to seek medical attention or at times even to suspect that she is pregnant and the inability of the physician to diagnose pregnancy readily by the end of the first month, it is impossible to expect any approach to completeness of reporting for this period. Similar circumstances probably preclude complete reporting at even later periods.

Reported fetal deaths for the 4-week intervals subsequent to the first interval, however, have in turn trebled, quintupled, quadrupled, and doubled since 1939. Reported deaths at 20 to 23 weeks' gestation increased 55 percent between 1939 and 1950. For later intervals, smaller increments are noted; and for the period 40 weeks and over, the number of fetal deaths declined. Two opposing forces are in operation: the one—a higher conception rate in recent years and improved reporting of earlier cases—tends to increase the numbers while the other—a decline in pregnancy losses by intrauterine death (which can be demonstrated for late fetal deaths although not for early ones)—tends to decrease the numbers. The relative importance of the several groups to the total numbers of reported fetal deaths is shown in table 2 by percentage distributions.

The pattern of fetal deaths by period of gestation as a function of the number of females of child-bearing age was investigated although it was recognized that division of the numbers by a different constant would change the picture little. The rate per 100,000 females aged 15 to 44 years was calculated for each gestation

Table 2. Fetal deaths reported in New York City, by period of gestation, 1939, 1944, and 1950

Period of gestation (in weeks)	Number			Percent distribution [1]		
	1939	1944	1950	1939	1944	1950
Total	6,831	9,987	16,405	100.0	99.9	100.0
0–3	54	100	85	0.8	1.0	0.6
4–7	700	1,190	2,179	10.4	12.1	13.7
8–11	1,110	2,590	5,620	16.5	26.3	35.3
12–15	725	1,350	2,937	10.8	13.7	18.5
16–19	690	915	1,434	10.2	9.3	9.0
20–23	565	675	894	8.4	6.9	5.6
24–27	440	423	443	6.5	4.3	2.8
28–31	383	388	417	5.7	3.9	2.6
32–35	313	367	404	4.7	3.7	2.5
36–39	447	549	468	6.6	5.6	2.9
40 and over	1,303	1,285	1,039	19.4	13.1	6.5
Unknown	101	155	485	-----	-----	-----

[1] Excludes those of unknown period of gestation.

interval for the years 1939 and 1950. The results are given in table 3 and figure 2.

Possible Extent of Fetal Loss

The fairly smooth curve produced by the fetal death rates per 100,000 females beginning with that for 8 to 11 weeks' gestation implies that, were full reports available for deaths at less than 8 weeks' gestation, a J-shaped curve might result for the entire range. Projection of a curve fitted to the data beyond the seventh week provides an estimated fetal loss of 528 per 100,000 females in the selected age group for the 4-to-7-week interval and 909 per 100,000 for the 0-to-3-week interval. (Compare these with the corresponding rates of 112 and 4.4 derived from reported fetal deaths.)

If this conjecture be accepted as appropriate, a total fetal loss rate of more than 2,100 per 100,000 females 15 to 44 years is obtained. With a live birth rate of 7,900, a total pregnancy rate of 10,000 is derived. It may be estimated, then, that 10 percent of the female population aged 15 to 44 years conceives in the course of a year, not considering repeated conceptions, which are of course possible. A closely similar estimate of the pregnancy or conception rate is deduced if the published estimate of deficiency (*2*), approximately 50 percent, is applied to the known fetal loss rate. If these estimates could be demonstrated to be true, it would mean that about 20 percent of pregnancies result in loss of the fetus and 80 percent in live births at the present time.

Disposal of Fetuses

A problem which occasionally arose prior to 1947 had to do with the disposal of fetuses. It must be remembered that a large proportion of the reports submitted to the New York City Department of Health are based only upon pathological examination of tissue recovered at curettage or other operative intervention—about 50 percent currently refer to fetal death before the twelfth week. However, when macroscopically identifiable fetuses are recovered, two factors should be considered: the wishes of the parents and the usual practices involving the disposal of dead bodies. Provisions had to be made, therefore, for direction from a parent as to the manner of disposal and for a permit from the health department when a certain specified period of gestation had elapsed before termination of the pregnancy. The "critical fetal age" was set at 16 weeks of gestation after long consideration and consultation with religious authorities. A pertinent paragraph was added to the sanitary code at the time of the 1947 revision:

"A fetus as defined in this section may be kept for anatomical purposes and/or disposed of by the person in professional attendance, with the consent of a parent, without a permit from the department of health provided a report of the fetal death has been made as required herein and provided, further, that not more than sixteen (16) weeks of gestation elapsed before the delivery. Whenever a parent or parents have specified that a dead fetus shall be buried, regardless of the period of gestation, or whenever the fetus has reached the sixteenth week of gestation, the fetus shall not be disposed of without a permit from the department of health."

The increase in the number of permits for disposal of fetuses has been relatively small as a result of these stipulations, and the registration offices in the city have not been overburdened by the obligation.

Table 3. Rate of reported fetal deaths per 100,000 females aged 15 to 44 years, New York City, 1939 and 1950

Period of gestation (in weeks)	1939 [1]	1950 [2]
Total	358.0	843.1
0–3	2.8	4.4
4–7	36.7	112.0
8–11	58.2	288.8
12–15	38.0	150.9
16–19	36.2	75.7
20–23	29.6	45.9
24–27	23.1	22.8
28–31	20.1	21.4
32–35	16.4	20.8
36–39	23.4	24.1
40 and over	68.3	53.4

[1] Rate based upon 1940 population of 1,908,360 reported by Bureau of the Census.
[2] Rate based upon population of 1,945,856, reported from sample data by Bureau of the Census.

Cooperation and Controls

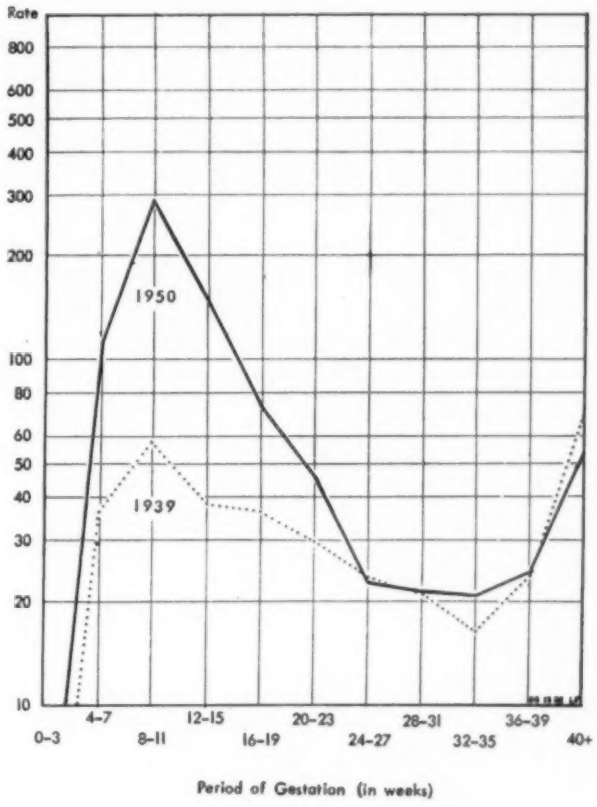
Obtaining reports of early fetal deaths rests largely upon convincing the physicians in the community of the value of such reports. Since the chance of getting reports of very early abortions at home is virtually nil, efforts should be concentrated upon hospitals, where postabortal patients needing attention and those submitting to therapeutic abortions will be gathered.

One large factor in the success of New York City is the fact that filing of reports of vital events occurring in hospitals or on hospital ambulance services is primarily the responsibility of the superintendents of the hospitals. This immediately reduces the control program, for there is understandably less effort to enforce reporting among some 200 hospital superintendents than among the much larger number of physicians practicing in these hospitals. Even considering that home cases must still be managed on an individual basis, concentration on the hospital group reduces the problem by an appreciable margin. Ability to utilize specific control measures, however, depends upon the auspices of hospital operation.

In a recent paper by Baumgartner and her colleagues (*2*), it was shown that reporting of fetal deaths from proprietary institutions was more complete than from other types of institutions. The reason is not obscure. These hospitals are licensed by the city, and the city department of hospitals is the inspecting agency which determines whether a license shall be issued or an annual renewal be granted. One of the criteria used for assessing the adequacy of hospital operation is the completeness of reporting of fetal deaths occurring or diagnosed in a hospital. Hospital charts are examined by inspectors of the department of hospitals, and lists of cases are searched against the indexes of the health department's bureau of records and statistics to determine whether fetal death certificates have been filed. Continued failure to file such records can be grounds for refusal to renew a license. This practice has provided an effective control over reporting from proprietary hospitals.

In municipal institutions, professional staff turnover makes it difficult to rely upon professional staff to initiate reports, especially when

Figure 2. Rate of reported fetal deaths per 100,000 females aged 15 to 44 years, New York City, 1939 and 1950.



such reports are based on requirements which differ from those which hold generally. Persons familiar with New York State law regarding reporting of fetal deaths, or that of any other area, cannot be expected to know local requirements unless specifically instructed. In the turmoil of introducing new staff, reporting of fetal deaths will be considered a relatively minor matter; therefore, other means than instruction of professional staff must be devised for continuing complete reporting.

Following the analysis of reporting of fetal deaths previously cited (*2*), the reporting of fetal deaths in municipal institutions was discussed with the director of the medical statistics and records service of the department of hospitals. As a result, the commissioner of hospitals approved an addition to the "Manual of Administrative Procedures" of that department, defining the situations where reports are required, outlining the reporting procedures, and prescribing follow-up measures by the hospital

record room to assure that reports are made.

Results of this order were evident immediately. In one municipal institution the number of fetal deaths increased from 68 in one year to 484 in the next while the number of live births in this institution remained relatively constant and the gynecological service showed no appreciable rise in number of patients. Obviously, fetal deaths had not been properly reported in previous years.

Direct control measures, such as exist with proprietary and municipal hospitals, are not available for use with voluntary, State, and Federal institutions. Efforts to obtain cooperation must be handled either indirectly or individually. An administrative officer of one of the larger institutions evinced some surprise not long ago to discover that stillbirths less than 20 weeks had to be reported! Now, the manual for that hospital includes such statements as: "In all cases where there is any product of conception, the doctor will fill out a report of birth. . . . All products of conception under 500 grams will be sent to the pathology laboratory. . . ."

Analysis of Fetal Death Statistics

Brief reference should be made to the influence of reporting requirements upon certain vital statistics data and upon interpretation of these data.

Infant Mortality

That reporting requirements have an influence on the infant mortality rate is well known. However, the degree to which infant deaths may be understated needs emphasis. For example, 36 infant deaths (under 1 week of age) at less than 20 weeks' gestation age were reported in 1949, and 74 such infant deaths were reported in 1950. There were 294 and 329 such infant deaths at less than 24 weeks of gestation age reported in these 2 years. One wonders what would have happened to these cases if reports of fetal deaths had been required only after 20 or more weeks' gestation had elapsed. It is not illogical to surmise that infant deaths at such an early gestation age might have been classed as stillbirths, and no report made if stillbirths need not be reported. But the cited 329 infant deaths in 1950 comprised 8.5 percent of the total infant deaths. Investigation of mortality among prematures would certainly be hampered if such cases were not reported.

The completeness of registration of fetal deaths close to the minimum period of reporting is questionable when an arbitrary gestation limit is stipulated. Resolving whether a fetus is 19 or 20 weeks' gestation age may be uncertain at best and is likely to be decided in favor of the answer which does not require reporting. It can be concluded that statistics on both infant deaths and fetal deaths will be based upon more nearly complete data for any specific period of gestation if all terminated pregnancies must be reported.

Whites and Nonwhites

Wide differentials have been found in fetal death statistics between whites and nonwhites. However, as has already been pointed out, the bulk of reports of early fetal deaths is obtained from patients in hospitals, and very early fetal deaths are unlikely to be reported, especially in the absence of medical care. That nonwhites receive less medical care than whites will not be argued. (Of the 11,206 fetal deaths reported in 1949 as white, 411 were reported following dilatation and curettage; of 3,249 reported as nonwhite, only 14 were such cases. The comparative incidence of such cases is therefore 36.7 to 4.3 per 1,000 fetal deaths.) This factor alone makes hazardous any comparison between the two groups as to incidence of fetal deaths or other analytical areas.

Complications of Pregnancy

The total incidence of reported complications increases with lower fetal age at delivery except among nonwhites. The question naturally arises, of course: Is incidence of complications actually lower among nonwhites, or are nonwhites more likely to have only terminal care from physicians who do not know the patient's history and therefore do not report complications to the same extent as for whites?

The analysis of both live birth and fetal death statistics as to complications of pregnancy is hampered by the lack of a commonly accepted definition of a "complication." While one physician may report any concurrent medi-

cal condition in the mother as a complication, another physician may consider such a condition, which is well controlled and causing no difficulty in management of the patient, as of no consequence and thus not reportable. The statisticians need clinical advice as to the point of view which should be adopted and recommended to physicians.

Summary and Conclusions

The reporting of fetal deaths has improved remarkably and steadily in New York City during the past 12 years. There is, however, a group of unknown size which is unlikely ever to be reported, namely, those which are unrecognized as termination of an early pregnancy and those which terminate without requiring or receiving medical attention.

The increase in the number of fetal deaths reported in New York City has been caused entirely by the increase in reported fetal deaths of less than 20 weeks' gestation. Little change has occurred in the ratio to live births for those of 20 to 27 weeks' gestation, and the ratio for those of 28 weeks' and over has decreased.

The problem of disposing of young fetuses, the different approaches to various hospital groups in attempting to obtain more nearly complete reporting, and the influence of incomplete reporting on analysis of statistics have been discussed.

Certain conclusions pertinent to the WHO recommendations may be drawn:

1. Required reporting of all recognized fetal deaths will provide more nearly complete statistical data regarding pregnancies terminating at the twentieth week of gestation or later than the required reporting of fetal deaths only after such a period.

2. The earlier the pregnancy terminates, the less is the likelihood of obtaining a report of the event, regardless of reporting requirements.

3. Lack of medical or hospital care in any particular group of the population will make difficult the interpretation of statistics resulting from the reports.

REFERENCES

(*1*) U. S. National Office of Vital Statistics: International recommendations on definitions of live birth and fetal death. PHS Publication No. 39. Washington, D. C., U. S. Government Printing Office, 1950.

(*2*) Baumgartner, L., Wallace, H. M., Landsberg, E., and Pessin, V.: The inadequacy of routine reporting of fetal deaths. Am. J. Pub. Health 39: 1549–1552 (1949).

Evaluation of Cancer in Connecticut, 1949

The Connecticut State Health Department reports 8,782 persons with active cancer at some time during 1949. Connecticut's cancer rate for that year was 443.5 per 100,000 population.

The report shows a downward trend in female cancer deaths, as shown by age-adjusted rates, and an upward trend in male cancer deaths until 1949, when the rates for males dropped.

Age specific incidence rates for females were higher than those for males from 15–54 years of age. But among children under 5, cancer was more prevalent in boys than in girls, and in persons over 60, the disease was more prevalent among men than among women.

Reporting of cancer in Connecticut is not required by law. The detailed data on cancer incidence, prevalence, and mortality were gathered through the voluntary register maintained by the division of cancer and other chronic diseases of the State health department. Connecticut hospitals, out-of-state hospitals, and the bureau of vital statistics of the State health department were the three sources of reports sent to the registry. Eighty-five percent of the cancer cases diagnosed in 1949 were reported by hospitals.

CMP Record

Construction of Hospitals, Health Centers, and Other Health Facilities, 1951–52

By WESLEY E. GILBERTSON, B.S.E.E., M.P.H., and HAROLD A. KAHN, M.A.

MORE than a quarter of last year's hospital construction costs were in projects designed to improve existing facilities without addition of any new bed capacity to the Nation's total. This and many of the other facts regarding health facility construction reported in this paper are a byproduct of Public Health Service claimant agency responsibilities under the Controlled Materials Plan (*1*).

In previous years, figures indicating the gross dollar value of hospital and institutional construction put in place have been obtained through reports issued by the Bureau of Labor Statistics and the Department of Commerce. Material published by the American Medical Association and the American Hospital Association contains data on existing hospitals and their bed capacity. More recently the reports issued by the Public Health Service in connection with the Hospital Survey and Construction Program (Hill-Burton Act) have provided comparative statistics with respect to existing hospital beds and requirements, based on State agency classification and analysis.

In addition to these sources, during the past year a wealth of detailed data have become available from applications submitted to the Public Health Service requesting authority to begin construction of hospitals and other health facilities and for allocations of critical materials under the Controlled Materials Plan. From these data, until now not available, it is possible to obtain a much better understanding of the nature and extent of the total construction effort currently being expended in the area of hospitals, health centers, clinics, nursing and convalescent homes, rehabilitation centers, nursing schools, medical research laboratories and related health and medical construction. Broader use of the information will be a valuable byproduct of the claimant agency program.

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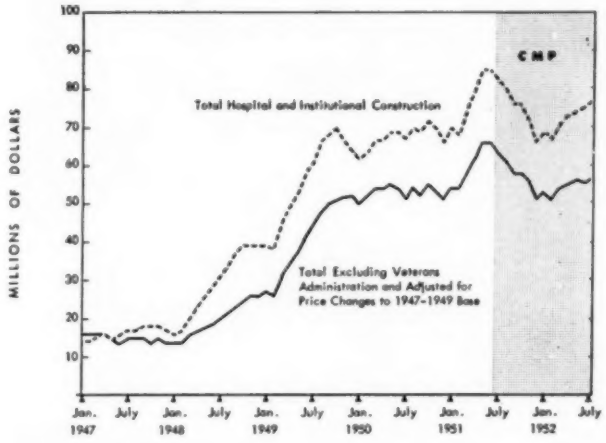
Construction Volume, 1947–52

Since January 1947, hospital and institutional construction has increased rapidly, as shown in figure 1. The exclusion of Veterans Administration hospital construction and the adjustment of all dollar values to a constant base makes it possible to compare the relative physical volume of health construction for the general civilian population over a 5½-year period.

In the civilian field, general health and medical care building more than tripled in volume from January 1947 through June 1952. There was a leveling off in 1950 of the steep upward trend, and the rate has continued since on an approximate plateau, except for a peak in the middle of 1951. Although the shortages of steel, copper, and aluminum have required careful use and allocation of these critical materials, the Nation continued to add to its health facilities at a near record rate through the first year of the Controlled Materials Plan.

Figure 1. Value of all nonmilitary hospital and institutional construction put in place each month, 1947–52.



Source: Bureau of Labor Statistics

Division of Construction Pie

Construction of health and medical care facilities totaled $773 million during the fiscal year July 1, 1951, through June 30, 1952. This represented 2.5 percent of the total national $31 billion annual construction volume. Other segments of special interest to the health profession are: sewer and water—$669 million, or 2.2 percent of the total; educational—$1.9 billion (6.1 percent); residential—$11.2 billion (36.3 percent). Figure 2 shows the proportions assumed by these and other classifications in the building industry and, in turn, the division between the major elements within the area of health and medical care. The "pie" section of this chart distributes the aggregate cost, as cited in the estimates on CMP applications; this covers all the health facility construction projects of the various types for which permits for construction to begin July 1951 through June 1952 were requested from the Division of Civilian Health Requirements, Public Health Service. Small construction projects requiring no more than 5 tons of carbon steel and 250 pounds of copper per quarter could be self-authorized under CMP regulations and are not represented on the chart. The same thing applies to requirements for maintenance, repairs, and operations not exceeding 30 percent per quarter of the rate for the calendar year 1952.

The most striking fact shown by this chart is that seven-tenths, 71 percent, of the total expenditure is for additions and remodeling of in-patient institutions and only slightly more than one-fifth, 22 percent, is going into completely new in-patient medical care facilities. The remainder is for other miscellaneous health facilities. This circumstance is undoubtedly known to persons who are familiar with national hospital building trends, but it may be surprising to others.

The preponderance of activity on general hospitals (new—18 percent; additions and remodeling—47 percent; total—65 percent) as compared with the more specialized institutions is not unexpected. However, it does not indicate the relative needs in each category. Another interesting comparison shows that the proportion of additions and remodeling to new institutions averages about three to one, except for mental facilities, for which it is ten to one.

The number of projects in various categories, the estimated cost, and their materials requirements are listed in table 1.

Materials Estimates and Project Needs

For each calendar quarter, the materials requirements for health facilities, as for all other construction and production, must be estimated and justified to the Defense Production Admin-

Glossary of Terms

Cost of Construction—includes fixed equipment but excludes land cost.

New Start—a construction project for which a permit to begin is required. Not necessarily a new institution.

Project—a unit of construction activity for which a separate permit is requested.

Institutional Construction—Relates to prisons, orphanages, etc. The volume of this type of construction is included with hospital construction in many published statistics. It is believed to be about 5 percent of the "hospital and institutional" total.

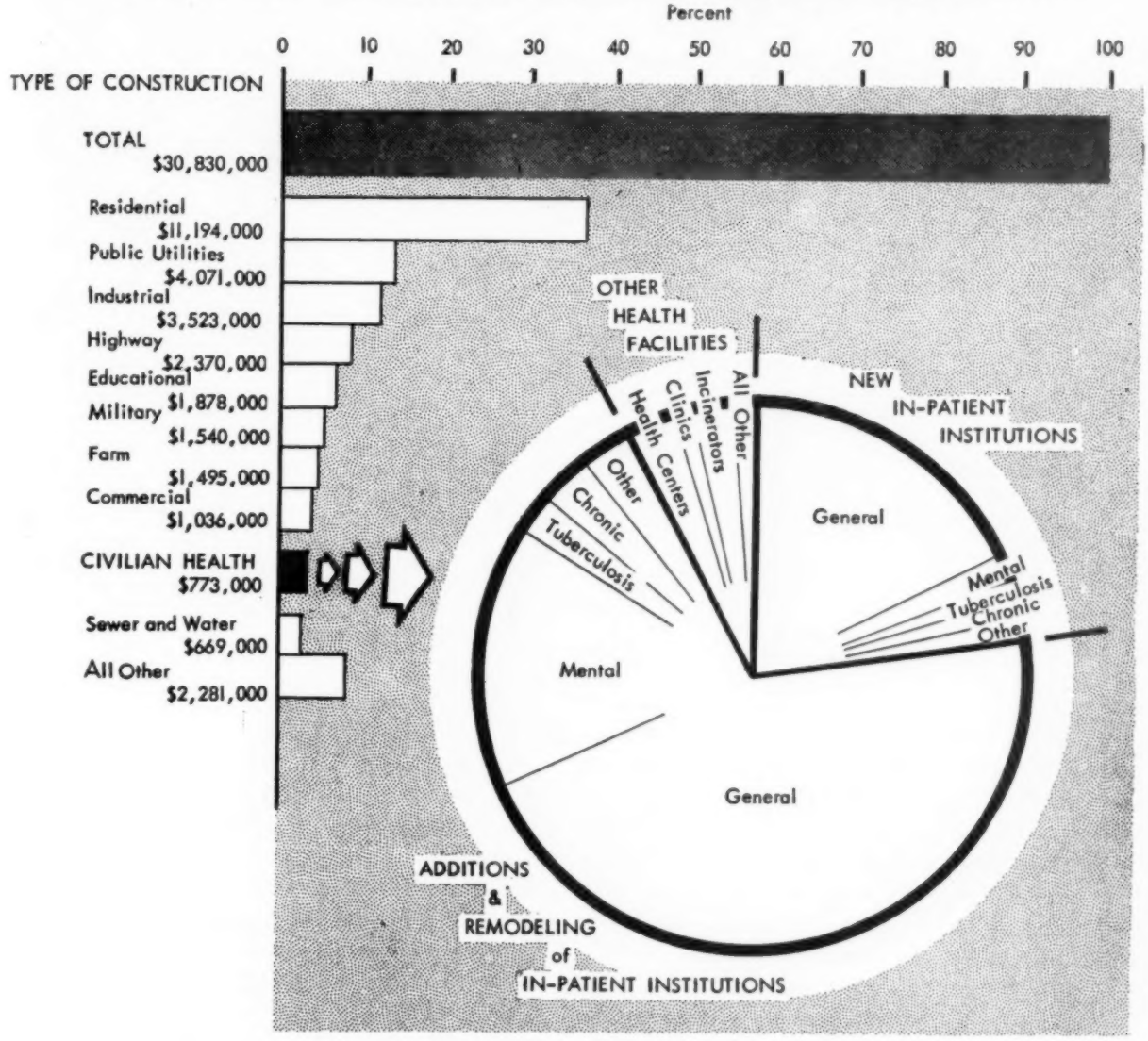
Table 1. Hospital and health facility construction projects, proposed new starts,[1] July 1951 through June 1952

Project	Total number of projects	Total construction cost (in millions of dollars)	Controlled materials requested for total project					
			Total carbon steel (short tons)	Steel plate (short tons)	Structural steel (short tons)	Copper and copper base brass mill products (000 lbs.)	Copper wire mill products (000 lbs.)	Aluminum (000 lbs.)
Grand total	1, 225	$791	254, 758	10, 338	67, 412	8, 641	7, 113	2, 296
Total all hospitals [2]	1, 058	738	230, 807	8, 886	56, 719	8, 208	6, 715	2, 055
New institutions	137	174	53, 666	1, 557	6, 758	1, 979	1, 607	552
Project adding beds	385	366	113, 377	3, 564	30, 088	3, 897	3, 041	798
Other construction	536	198	63, 764	3, 765	19, 873	2, 332	2, 067	705
General hospitals	650	512	157, 192	5, 011	38, 016	6, 215	4, 868	1, 835
New institutions	108	139	43, 039	1, 122	4, 893	1, 626	1, 374	499
Project adding beds	285	256	73, 848	2, 069	17, 470	2, 917	2, 259	741
Other construction	257	117	40, 305	1, 820	15, 653	1, 672	1, 235	595
Mental hospitals	253	136	49, 016	3, 264	15, 779	1, 088	1, 055	157
New institutions	4	12	3, 763	89	1, 088	78	44	18
Project adding beds	50	63	26, 105	1, 419	11, 116	482	429	40
Other construction	199	61	19, 148	1, 756	3, 575	528	582	99
Tuberculosis hospitals	71	26	6, 528	145	946	275	230	14
New institutions	7	8	1, 969	46	385	134	51	9
Project adding beds	23	11	3, 643	25	447	103	128	4
Other construction	41	7	916	74	114	38	51	1
Chronic hospitals	21	34	12, 541	338	777	429	382	11
New institutions	5	9	3, 339	223	162	89	108	3
Project adding beds	9	18	7, 319	28	299	297	130	5
Other construction	7	7	1, 883	87	316	43	144	3
Other hospitals	35	23	3, 489	84	884	138	145	36
New institutions	3	2	590	35	54	17	18	23
Project adding beds	13	16	1, 824	22	690	82	82	7
Other construction	19	5	1, 075	27	140	39	45	6
Nursing homes	28	7	2, 041	44	317	63	35	2
New institutions	10	4	966	42	176	35	12	[3]
Project adding beds	5	2	638	1	66	16	13	1
Other construction	13	1	437	1	75	12	10	1
Total other facilities	167	53	23, 951	1, 452	10, 693	433	398	241
Health centers	67	18	8, 219	110	4, 046	187	173	117
Clinics	43	8	2, 074	29	488	96	82	2
Incinerators [4]	25	18	10, 031	1, 124	5, 411	29	66	114
Other	32	9	3, 627	189	748	121	77	8

[1] Excluding projects later withdrawn by their sponsors. [2] Includes nursing homes. [3] Less than 500 pounds.
[4] The average cost per ton of increased capacity, based on 24-hour operation, was about $3,000.

istration. Since the supplies of steel, copper, and aluminum were only 60, 65, and 64 percent, respectively, of the total amounts claimant agencies requested during the year, the Defense Production Administration had to apportion the available supplies in accordance with its standards of essentiality. Table 2 lists the amounts that were requested and granted by calendar quarter for each of the controlled materials used in hospital and health facility construction. The volume of materials given in this table was required for completion of projects that had started prior to CMP as well as for the needs of the "new starts."

Figure 2. Total United States construction volume (in thousands of dollars) and relative dollar volume of hospital and health facility projects proposed to start July 1951 through June 1952.



New in-patient institutions	*Percent*
Total	22.0
General	17.6
Mental	1.5
Tuberculosis	1.0
Chronic	1.1
Other	0.8

Additions and remodeling of in-patient institutions	*Percent*
Total	71.4
General	47.2
Mental	15.7
Tuberculosis	2.3
Chronic	3.2
Other	3.0

Other health facilities	*Percent*
Total	6.6
Health Centers	2.3
Clinics	1.0
Incinerators	2.3
All other	1.0

Source for bar chart data: *Construction*, December 1951 and June 1952, and unpublished data, Bureau of Labor Statistics

The record shows that steel requests were reduced by an average of about one-fourth. Copper-brass mill (plumbing) requirements were cut by nearly one-half and copper wire by a third. The aluminum estimates, which were also reduced almost by one-half, are not considered as vital to construction. This treatment of materials requests for civilian health facility construction should not be compared with the relationship of total supply to total request

Table 2. Controlled materials requested from the Defense Production Administration for construction of civilian health facilities and the amount and percent allocated

Calendar year period	Tons			Thousand pounds		
	Total carbon steel	Steel plate	Structural steel	Copper-brass mill products	Copper wire mill products	Aluminum
Third quarter 1951:						
Requested	102, 144	----------	----------	4, 886	3, 686	1, 059
Granted	75, 000	----------	----------	2, 229	2, 035	550
Percent	73. 4	----------	----------	45. 6	55. 2	51. 9
Fourth quarter 1951:						
Requested	100, 816	----------	24, 258	2, 905	1, 470	1, 049
Granted	81, 200	----------	24, 400	1, 530	1, 110	500
Percent	80. 5	----------	100. 6	52. 7	75. 5	47. 7
First quarter 1952:						
Requested	98, 760	3, 667	26, 366	1, 917	1, 782	619
Granted	71, 000	2, 651	19, 004	1, 277	1, 456	400
Percent	71. 9	72. 3	72. 1	66. 6	81. 7	64. 6
Second quarter 1952:						
Requested	90, 080	4, 085	27, 424	2, 458	2, 192	665
Granted	75, 000	2, 700	18, 315	1, 223	1, 500	388
Percent	83. 3	66. 1	66. 8	49. 8	68. 4	58. 3
Total July 1951 to June 1952:						
Requested	391, 800	7, 752	78, 048	12, 166	9, 130	3, 392
Granted	302, 200	5, 351	61, 719	6, 259	6, 101	1, 838
Percent	77. 1	69. 0	79. 1	51. 4	66. 8	54. 2

without considering that military, atomic energy, and related requirements were granted at 100 percent. With this in mind, it is accurate to state that civilian health facility construction requests properly received preferred treatment from the Defense Production Administration.

If the reduced allotments received from the Defense Production Administration had been passed directly on to hospital and health facility projects, about 400 applications would have been rejected. Instead, each application was screened carefully, with the assistance of the State hospital agencies and the regional offices and the available material was distributed as equitably as possible among all eligible health facility projects. At the same time, an educational campaign was directed toward the conservation of critical materials. As a result, all of the projects falling within our claimant jurisdiction for the first three quarters have been approved and less than 10 projects for second quarter 1952 were pending September 1, 1952 (fig. 3).

The process of analyzing CMP applications is an important and critical responsibility. Months and years of planning and hopes are represented by each document. Every effort has been made to take into consideration any special circumstances which require unusual amounts of materials. We believe that, in general, conservation efforts have been successful in the sense that materials were stretched over additional projects without sacrificing soundness of construction. A possible exception is in the partial substitution of less permanent materials for copper and brass plumbing lines during the latter part of the year. In this connection, the Public Health Service urged that the available copper and brass be used in the more inaccessible locations of structures where any future replacement would be difficult and expensive.

Maintenance of Standards

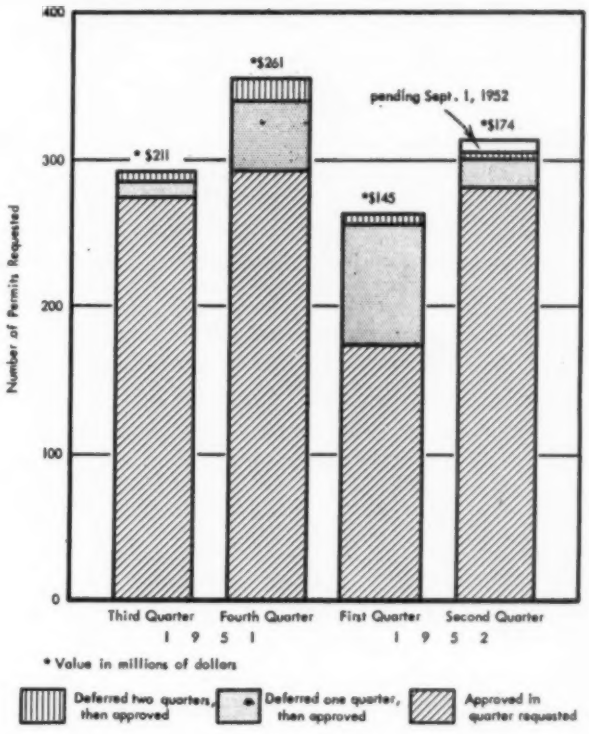
Equally as important as completely new facilities to students of medical care economics is the expenditure—in dollars and materials—that is required to avoid deterioration. This expenditure is represented by the sum of those repairs and renovations needed to maintain existing beds in operation and in an acceptable status. Included are projects for structural renovation, rewiring, sprinkler systems, fire es-

capes, reroofing, and the like. Some of the projects stem from fire and safety inspections and mandatory orders to correct hazardous conditions. Minor repairs which were self-authorized are excluded from this tabulation. If they were added, they would raise the total number of projects considerably, but, due to their nature, would not proportionately affect the total expenditures or materials requirements.

Of the total number of hospital and nursing home projects approved during the past year, more than one-half (51 percent) did not add beds. Over one-quarter (27 percent) of the cost was for nonbed projects. Table 3 shows the funds and materials required by the three significant "R's"—repair, remodeling, renovation—for various types of facilities during the past year.

Nearly 3 out of every 10 dollars expended for hospital and nursing home construction—about $200 million last year—went into improvements needed to maintain, but not add, beds. And this amount was not all that is really needed for repairs and renovation. Undoubtedly many beds slipped into an unacceptable status because the necessary investment was not made to overcome obsolescence.

Figure 3. Requests for permits to begin health facility construction, by quarters, July 1951 through June 1952.



Hill-Burton Stimulus

Much of the credit for the increased pace of hospital and other health facility construction during calendar years 1948 and 1949, as well as the current high level shown in figure 1, can be attributed to the stimulating effect of Hill-Burton grants. Thirty-two percent of the cost of all hospital and health facility construction authorized to begin construction from July 1,

Table 3. Percent of projects, construction cost, and materials required to maintain existing in-patient care facilities without adding beds to Nation's total, July 1951 to June 1952, inclusive

Type of facility	Number of projects		Construction costs (in millions)		Steel requirement (tons)		Copper mill products requirement (000 lbs.)		Copper wire requirement (000 lbs.)	
	Total	Percent not adding beds	Total	Percent not adding beds	Total	Percent used without adding beds	Total	Percent used without adding beds	Total	Percent used without adding beds
Total	1,058	50.7	$738	26.8	230,807	27.6	8,208	28.4	6,715	30.8
General	650	39.5	512	22.9	157,192	25.6	6,215	26.9	4,868	25.4
Mental	253	78.7	136	44.9	49,016	39.1	1,088	48.5	1,055	55.2
Tuberculosis	71	57.7	26	26.9	6,528	14.0	275	13.8	230	22.2
Chronic disease	21	33.3	34	20.6	12,541	15.0	429	10.0	382	37.7
Other hospitals	35	54.3	23	21.7	3,489	30.8	138	28.3	145	31.0
Nursing homes	28	46.4	7	14.3	2,041	21.4	63	19.0	35	28.6

1951, through June 30, 1952, was for projects assisted by the Hill-Burton program. Thirteen percent of the total cost was represented by direct Federal funds. The greater volume of Hill-Burton assistance to general hospitals than other facilities is shown in figure 4.

Analysis of Bed Need

A significant element in the Hill-Burton program is the analysis of bed need by the responsible State agencies. To qualify for Federal grants under the act, a State is required to develop an annual plan approved by the Public Health Service. Each plan includes an inventory of all available non-Federally operated facilities, in terms of "acceptable" and "non-acceptable," and an estimate of the beds and facilities needed to increase the resources of the State to the level authorized by the act. These total bed needs are the number required to meet the minimum standards adopted under the act. They are therefore not necessarily the ultimate goals.

Table 4. In-patient care facilities requested for construction start July 1951 to June 1952, showing beds to be added relative to need, by Federal Security Regions for general hospitals and United States total for other facilities

Type of facility and area	Number of projects	Reported cost of construction (in millions)	Total beds needed [1]	Existing beds Jan. 1, 1952 [1]	Beds to be added by July 1951–June 1952 starts
General hospitals					
Total	650	$511.9	[2] 708,574	[2] 474,334	[2] 28,342
Region 1	44	31.9	44,289	27,012	1,350
Connecticut	9	7.2	9,180	6,628	193
Maine	1	2.5	4,082	1,902	69
Massachusetts	28	20.5	23,217	13,653	1,012
New Hampshire	2	.4	2,564	1,792	27
Rhode Island	3	1.0	3,482	1,938	29
Vermont	1	.3	1,764	1,099	20
Region 2	102	109.5	141,553	103,420	5,214
Delaware	2	.1	1,474	1,253	0
New Jersey	23	20.9	21,496	15,530	1,445
New York	48	53.4	68,267	51,375	1,827
Pennsylvania	29	35.1	50,316	35,267	1,942
Region 3	66	46.4	67,181	42,153	2,681
District of Columbia	1	[3]	3,780	2,491	0
Maryland	12	7.2	10,388	7,280	379
North Carolina	24	21.8	20,001	13,169	1,240
Virginia	13	5.2	13,858	8,614	291
West Virginia	5	2.9	9,104	5,587	212
Puerto Rico	8	8.5	9,914	5,012	555
Virgin Islands	3	.8	136	[4]	4
Region 4	62	36.6	76,458	46,710	2,554
Kentucky	9	7.5	13,430	7,479	484
Michigan	29	13.0	27,953	15,940	884
Ohio	24	16.1	35,075	23,291	1,186
Region 5	77	68.9	87,400	58,605	4,283
Illinois	36	43.0	39,467	28,116	2,457
Indiana	13	13.0	17,874	8,060	772
Minnesota	13	5.3	14,106	10,679	383
Wisconsin	15	7.6	15,953	11,750	671
Region 6	73	44.9	74,269	43,442	2,809
Alabama	14	5.3	13,751	7,251	398
Florida	14	7.8	10,793	7,679	694
Georgia	18	9.3	15,329	8,571	505
Mississippi	6	4.5	9,918	4,793	228
South Carolina	10	11.1	9,714	6,204	660
Tennessee	11	6.9	14,764	8,944	324

Table 4 shows, by State, the available existing and the "total needed" general hospital beds as reported January 1, 1952, by the Division of Hospital Facilities, Public Health Service, as compared with the number of beds which will be added upon completion of the requested construction starts for the period July 1951 through June 1952. Similar data, when available, are also included in this table for other types of health facilities omitting the geographic detail for individual States and regions. The 2-page chart illustrates the need as compared with the current rate of bed construction, neglecting the obsolescence that is not being met through renovation.

The most notable observation to be made from these data is that the current high amount of construction will not close the gap between beds needed and beds existing for general hospitals in less than 7 years; for mental and tuberculosis hospitals in less than 25 years; and for chronic hospitals in less than 170 years! None of these time estimates make provision for an expanding population, for uncorrected

Table 4. In-patient care facilities requested for construction start July 1951 to June 1952, showing beds to be added relative to need, by Federal Security Regions for general hospitals and United States total for other facilities—Continued

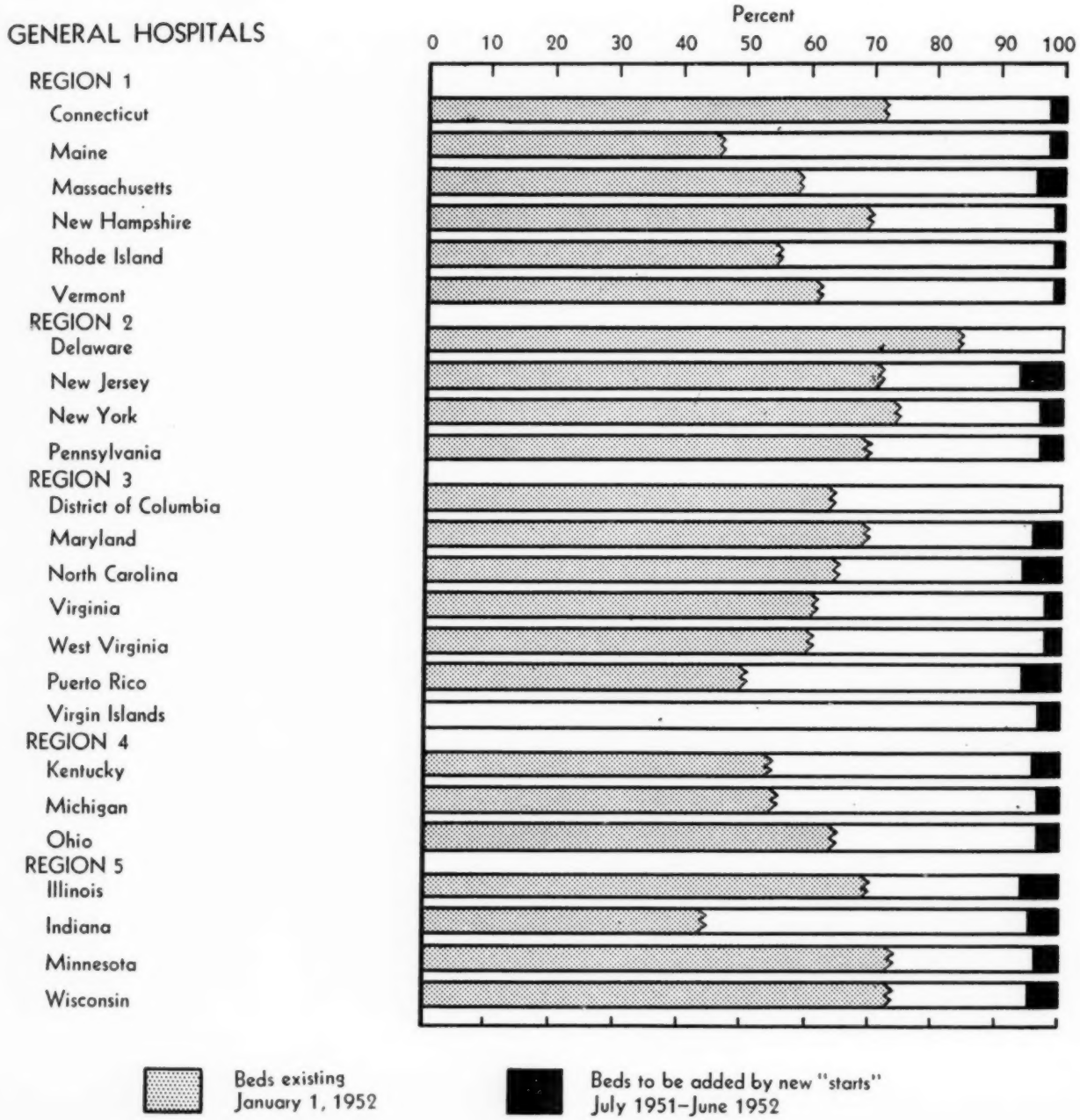
Type of facility and area	Number of projects	Reported cost of construction (in millions)	Total beds needed[1]	Existing beds Jan. 1 1952[1]	Beds to be added by July 1951–June 1952 starts
General hospitals—Continued					
Region 7	49	29.3	53,712	41,414	1,859
Iowa	12	9.2	11,795	9,132	453
Kansas	10	6.3	9,092	6,912	479
Missouri	12	10.2	18,800	14,768	623
Nebraska	8	1.6	6,417	4,891	140
North Dakota	5	1.5	4,079	3,144	153
South Dakota	2	.5	3,529	2,567	11
Region 8	59	52.3	70,292	47,842	3,038
Arkansas	9	9.7	8,722	3,651	569
Louisiana	14	13.9	13,609	9,498	671
New Mexico	4	4.5	3,848	2,428	62
Oklahoma	6	.6	10,442	6,971	41
Texas	26	23.6	33,671	25,294	1,695
Region 9	19	9.0	18,129	14,049	619
Colorado	11	2.6	6,238	5,228	191
Idaho	0	0	3,040	2,047	0
Montana	3	1.2	3,840	3,285	66
Utah	3	3.7	3,435	2,300	252
Wyoming	2	1.5	1,576	1,189	110
Region 10	99	83.1	[2] 75,291	[2] 49,687	[2] 3,935
Arizona	2	4.9	3,921	3,256	387
California	72	59.6	49,287	32,527	2,719
Nevada	0	0	884	645	0
Oregon	9	4.4	6,912	4,572	395
Washington	13	8.0	11,367	7,150	348
Alaska	1	.5	780	329	0
Hawaii	1	.7	2,140	1,208	86
Midway Islands	1	5.0	----	----	312
Other facilities (U. S. total)					
Mental hospitals	253	135.6	755,097	412,932	11,733
Tuberculosis hospitals	71	25.9	132,899	87,550	1,750
Chronic hospitals	21	34.0	302,236	43,007	1,509
Other hospitals	35	22.8	----	----	826
Nursing homes	28	7.3	----	----	1,120

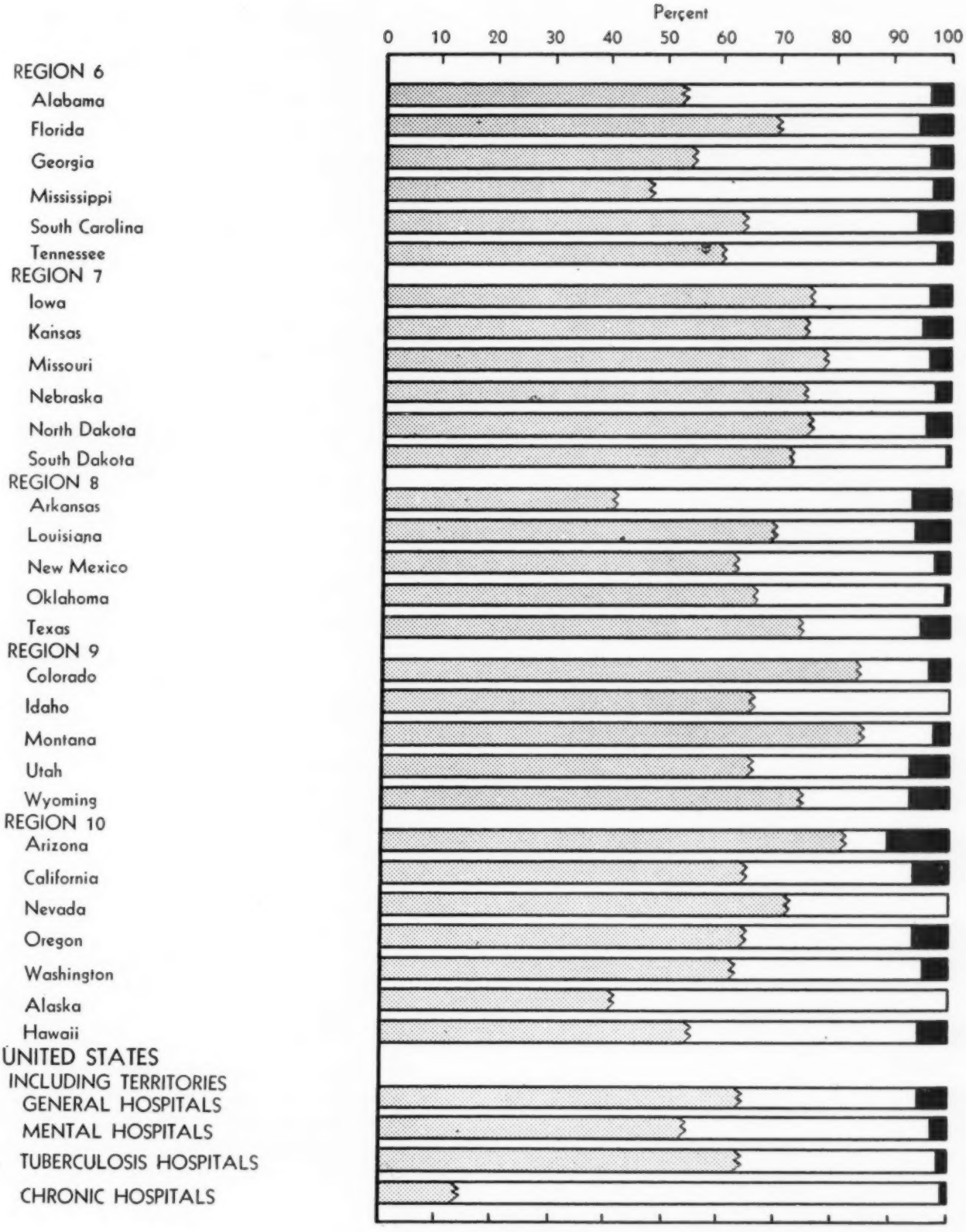
[1] Division of Hospital Facilities, Public Health Service.
[2] Excludes Midway Islands.
[3] Construction cost—$4,000.
[4] No acceptable beds.

Beds Needed and Beds Existing

Compared With One Year's New Construction

The beds existing on January 1, 1952 and the beds to be added by new "starts" July 1951–June 1952 are shown in proportion to total bed needs as of January 1, 1952. Total bed needs are expressed as "100" for each category.




Percent
0 10 20 30 40 50 60 70 80 90 100
REGION 6
Alabama
Florida
Georgia
Mississippi
South Carolina
Tennessee
REGION 7
Iowa
Kansas
Missouri
Nebraska
North Dakota
South Dakota
REGION 8
Arkansas
Louisiana
New Mexico
Oklahoma
Texas
REGION 9
Colorado
Idaho
Montana
Utah
Wyoming
REGION 10
Arizona
California
Nevada
Oregon
Washington
Alaska
Hawaii
UNITED STATES
INCLUDING TERRITORIES
GENERAL HOSPITALS
MENTAL HOSPITALS
TUBERCULOSIS HOSPITALS
CHRONIC HOSPITALS
Beds existing January 1, 1952
Beds to be added by new "starts" July 1951–June 1952

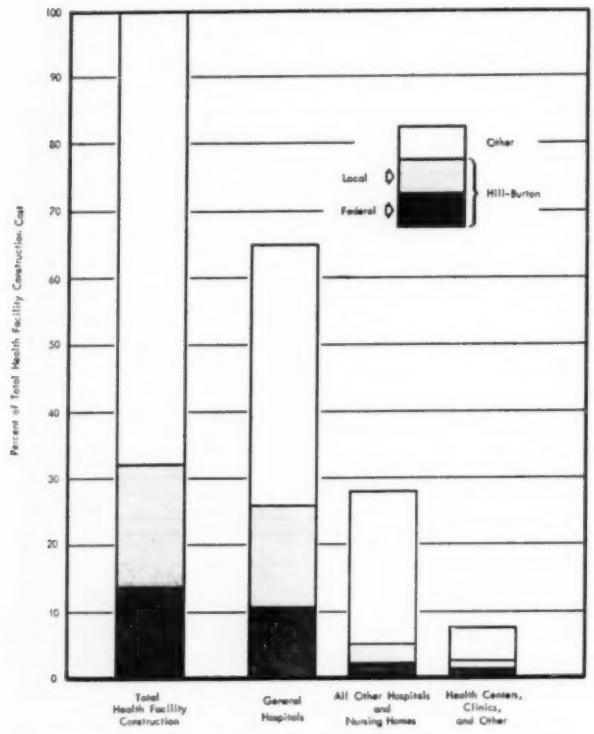


Figure 4. Percent of *total* health facility construction cost supported by Hill-Burton grants, requested starts, July 1951 through June 1952.

obsolescence over future years, or for what may be of primary importance—changes in patterns of hospital usage. Another interesting observation is that no geographic or sectional pattern is evident. There are wide variations between individual States, but the differences are as likely to occur between neighboring States as those separated by half the continent.

Ownership of Projects

Table 5 shows the distribution of construction cost into three categories of ownership: public, private nonprofit, and proprietary for various groups of health facilities. During the year, 44 percent of the construction cost of new starts was on publicly owned facilities, 55 percent on privately owned nonprofit, and 1 percent on proprietary projects.

Summary

1. Civilian health facility construction has not been seriously set back under the controlled materials plan.

Table 5. Percentage distribution of construction cost by type of ownership for requested new starts, July 1951 through June 1952

Type of facility	Percentage of construction cost		
	Public	Private nonprofit	Proprietary
Total	43.6	54.9	1.5
Total hospitals and nursing homes	40.9	58.0	1.1
General hospitals	29.0	69.7	1.3
Mental hospitals	88.1	11.7	.2
Tuberculosis hospitals	87.4	11.1	1.6
Chronic hospitals	21.6	78.4	0
Other hospitals	28.6	70.4	.9
Nursing homes	24.2	72.7	3.0
Health centers	95.1	3.3	1.6
Clinics	8.5	46.5	45.1
Incinerators	100.0	0	0
Other	76.8	23.2	0

2. Construction volume for additions to and remodeling of hospitals far exceeded the volume of new hospital construction.

3. Two-thirds of all construction volume in the civilian health field was for general hospitals.

4. Although given preferred treatment by the Defense Production Administration, civilian health facilities were allocated much smaller quantities of materials than needed. A policy of conservation was adopted to "spread" the available materials and prevent an appreciable number of disapproved applications.

5. More than one-fourth of in-patient construction volume was for nonbed projects.

6. One-third of all health facility construction received Hill-Burton assistance.

7. The number of new beds of all types started during the year was about 45,000.

8. Forty-four percent of health construction was publicly owned; 55 percent was privately owned by nonprofit organizations; and 1 percent was privately owned and operated for profit.

REFERENCE

(*1*) Gilbertson, W. E.: The CMP and the public's health. Pub. Health Rep. **67**: 8-13 (1952).

Obstacles to Eradicating Congenital Syphilis

By JOHN J. WRIGHT, M.D., M.P.H., CECIL G. SHEPS, M.D., M.P.H., EUGENE E. TAYLOR, M.D., M.P.H., and ALICE J. GIFFORD, A.B., M.N.

CONGENITAL syphilis is one of the most completely preventable of all serious diseases. Its epidemiology and pathogenesis are so thoroughly understood and available methods of prevention, diagnosis, and treatment are potentially so excellent that eradication seems to be a practical goal.

There has been much progress toward this goal. In fact, Nelson and Struve (*1*), on the basis of a careful study in Baltimore, conclude that the number of infants born with syphilis probably cannot be reduced any further—until there is less syphilis among adults or until more mothers seek and obtain early prenatal care.

This conclusion may be applicable to many communities. However, it is likely that in others the effectiveness of control activities aimed directly at congenital syphilis could be improved relatively cheaply. For this reason a brief review of the general problem seems indicated. A few of the most pertinent and recent papers are cited, and findings of a recent study in North Carolina are summarized in some detail.

Epidemiology

Syphilis may be transmitted from mother to fetus between the fifth month of pregnancy and the day of delivery. The father does not transmit infection to his unborn child except indirectly when he is the source of the mother's infection. If a pregnant woman has untreated primary or secondary syphilis the fetus will be infected in almost 100 percent of cases. Chances for infection of the fetus decrease with increasing duration of the maternal infection.

Clinical Aspects

Penicillin treatment of the pregnant woman is extremely effective in the prevention of congenital syphilis. Once adequate treatment has been received, it is no longer considered necessary to re-treat the mother during every pregnancy, if she can be followed closely (*2*).

Diagnosis of syphilis in infancy is often difficult. There may be no physical signs of the disease. The serologic test for syphilis (STS) is often negative until 3 or 4 months of age. On the other hand, nonsyphilitic infants of syphilitic mothers (usually with treated or old infections) may be seropositive from birth until 3 months of age because of transplacental transfer of maternal reagin. Nonsyphilitic infants also may develop biological false positive serologic tests during the fifth month of life or after. This is thought to be due usually to an immunization procedure or an acute infection (*3*).

Penicillin is the agent of choice for the treatment of congenital syphilis. The patient is more likely to become seronegative if he is treated before age 2 and preferably in the first 6 months of life. Interstitial keratitis remains a difficult complication to prevent or to treat.

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Recently cortisone has been used as an adjuvant in treatment (*2*).

Incidence and Prevalence

There are a number of defects in the statistical indexes currently used for the measurement of congenital syphilis in a population (*1*, *4*).

The rate of discovery of infected children age 0–1 per 1,000 live births is one index of trend. This should be made specific for race. In comparing rates, allowances must be made for differences in the age distribution of the mothers, and for differences in the effectiveness of case finding among infants.

For the study of trends over long periods of time, attack rates can be obtained by assigning cases discovered at any age to the year of birth before computations are made. To obtain an accurate rate for any one year it is necessary to revise the rate over the period of the following several years.

At present, about 13,000 cases of congenital syphilis are reported each year in the continental United States, and it is estimated that there is a residue of 100,000 undiscovered cases in our child population, age 0–10. Congenital syphilis is primarily a regional problem. During 1941–49, one-half of all cases were reported from 13 southern States which together include only about one-fourth of the total population of the country (*5*).

The total number of reported cases has remained constant since 1944. In fiscal year 1951, 6.4 percent of reported cases were age 0–1 at time of discovery, 7.2 percent were age 1–4, 17.1 percent were age 5–9, 0.3 percent were under 10 but of unknown age, and 69 percent were age 10 and above (*6*). These are the first figures on the age distribution of reported cases that have been available for the country as a whole. It is not known whether this age distribution has been constant from year to year or has been changing. Therefore, the number of children now being born with syphilis cannot be estimated.

The residue of undiscovered cases may be shrinking because of case-finding efforts and because fewer infected infants are born. If so, the constant level of reported cases could be accounted for by the success of the case-finding program among older children. However, it is possible that in at least some communities, the residue of undiscovered cases is being at least partially replenished by significant numbers of syphilitic newborn infants, few of whom are diagnosed in infancy.

Missed Control Opportunities

The North Carolina Syphilis Studies has developed a simple classification of the types of opportunities which professional health workers have for bringing about the eradication of congenital syphilis. In studying histories of cases discovered in any community, opportunities which have been missed can be tabulated. This will reveal weaknesses of the local control program and suggest where emphasis needs to be placed. Similar classifications could be developed for the study of problems in the control of acquired syphilis and other diseases of public health importance.

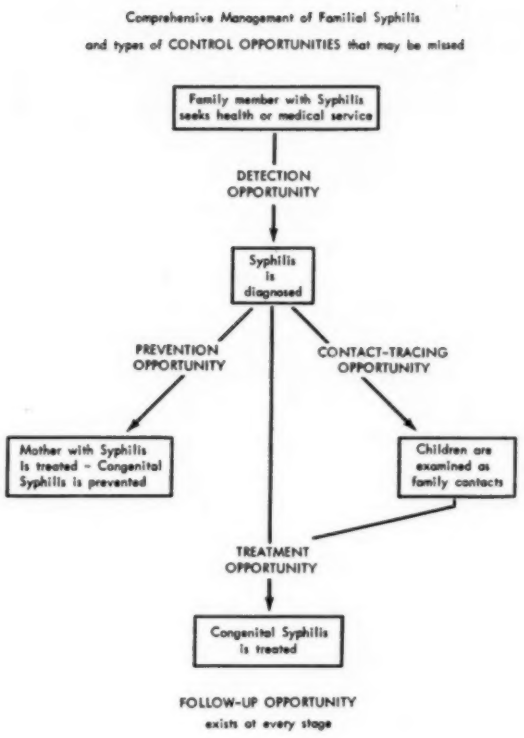
Each instance in which there was an opportunity to prevent congenital syphilis or to treat is at an earlier date is counted as a missed "control opportunity." Control opportunities are classified into five types: detection; prevention; contact tracing; treatment; and follow-up (see figure).

Assume that there is a family consisting of mother, father, and two children. Both parents have had syphilis and both children have had congenital syphilis. All members of the family have now received adequate treatment. The family history is to be reviewed beginning at the time when infection first entered the family and ending at the time when all members of the family had finally been treated.

If the history showed that any family member was given health or medical service at a time when syphilis could have been detected by STS, history or physical examination, or both, this event will be considered a detection opportunity. There may or may not have been a clue suggesting syphilis, but syphilis would have been detected if suspected.

If one member of the family was found to have syphilis, other types of control opportunities were immediately presented, depending on the circumstances.

If the mother was found to have syphilis


Comprehensive Management of Familial Syphilis
and types of CONTROL OPPORTUNITIES that may be missed
Family member with Syphilis seeks health or medical service
DETECTION OPPORTUNITY
Syphilis is diagnosed
PREVENTION OPPORTUNITY
CONTACT-TRACING OPPORTUNITY
Mother with Syphilis is treated – Congenital Syphilis is prevented
Children are examined as family contacts
TREATMENT OPPORTUNITY
Congenital Syphilis is treated
FOLLOW-UP OPPORTUNITY
exists at every stage

before either or both children were born, there was a "prevention opportunity." If the mother had been given adequate antisyphilitic treatment during or before pregnancy, congenital syphilis could have been prevented.

If, after the birth of a congenital syphilitic child, the mother, father, or other child was found to have syphilis, there was a "contact-tracing opportunity."

If either child was found to have syphilis, there was a "treatment opportunity." Again the indicated action here was skillful and adequate administration of antisyphilitic drugs.

Finally, "follow-up opportunities" occurred at any point where follow-up was needed to keep the family under observation until needed services had been given.

This classification was used in the study of 60 cases of congenital syphilis discovered in four North Carolina counties during the period 1946–50.

Ages of the 60 patients at time of final discovery ranged from 1 month to 24 years with a median age of 8 years. Their histories demonstrate weaknesses of control programs in years past. During recent years momentous changes have taken place in control methods. Hence it cannot be assumed that present weaknesses are the same as those demonstrated. On the other hand, it cannot be assumed that they are different. The failures of today's control efforts will not all be revealed for many years hence.

Data for family histories were collected as follows:

Health department and hospital records on family members were reviewed and abstracted.

Mothers and other responsible family members were interviewed personally.

Private physicians were interviewed or sent letters of inquiry.

The register of STS reports and birth reports maintained for the four counties by the North Carolina Syphilis Studies was searched for data on each family.

Altogether, for the 60 cases studied in this fashion, 348 missed control opportunities were identified. The least number for any case was 1; the greatest number was 18. The table presents the number and relative frequency with which each type of control opportunity had been missed.

Number and types of control opportunities missed prior to adequate treatment of 60 cases of congenital syphilis

Types of control opportunity	Number	Percent
Detection opportunities	199	57. 2
Prevention opportunities	12	3. 4
Contact-tracing opportunities	85	24. 4
Follow-up opportunities	46	13. 2
Treatment opportunities	6	1. 7
Total	348	99. 9

Slightly more than one-half of the total (57.2 percent) were detection opportunities, about one-fourth (24.4 percent) were contact-tracing opportunities, and about one-eighth (13.2 percent) were follow-up opportunities. In only 18 instances did the difficulty center around the problems of drug administration (missed prevention and treatment opportunities). The usual difficulty was that a mother or child would fail to complete an arsenical-bismuth schedule of treatment despite definite efforts at follow-

up. With penicillin therapy, this type of problem should be even more rare.

Detection Opportunities

Detection opportunities had been overlooked in the following ways:

1. Mothers were allowed to go through pregnancy and delivery without an STS having been done. Reasons were that the mother received no prenatal care at all, the physician did no STS as part of prenatal care or at time of delivery, or a midwife attendant failed to have her patient examined at a physician's office or health department clinic.

The prenatal STS is universally recognized as an indispensable technique in congenital syphilis control. Much faith has been placed in the value of "prenatal blood-testing laws." As of May 1950, 40 States had such laws (*5*).

There is little accurate information as to how effective the prenatal laws are when not supplemented by other educational techniques. In a few States, for example, California, studies have indicated that a prenatal STS was done in well over 90 percent of pregnancies (*7*).

North Carolina's prenatal law went into effect in January 1940. A study was made recently of over 16,000 pregnancies occurring in three rural North Carolina counties during 1941–49. An STS during pregnancy or at time of delivery had been done in only 54 percent of pregnancies. For women hospitalized for delivery the figure was 69 percent; of women delivered at home by physicians, 42 percent were tested; 40 percent of women delivered at home by midwives were tested. Over the period of 9 years, there was only a small increase in the proportion of women receiving tests (unpublished data, North Carolina Syphilis Studies).

The State health department in South Carolina also found in 1948 and 1949 that significant numbers of pregnant women were not being tested despite the prenatal law of 1946. Ball's paper (*8*) describes how an effective educational campaign based on this study was developed among physicians, midwives, and health department personnel.

2. Mothers were infected after a negative prenatal STS had been obtained.

A maternal infection, reinfection, or relapse late in pregnancy may be overlooked because of reliance on earlier negative tests. Because of this possibility, some authorities have suggested that at least two prenatal STS should be done routinely—one early in pregnancy and one late in the third trimester or at delivery. However, increasing the number and types of routine diagnostic tests definitely costs both time and money. Also, unless it can be assured that each pregnant woman gets at least one STS, it may be unrealistic to advocate repeat tests as a routine measure. Fiumara (*9*) makes the practical suggestion that the STS be repeated late in pregnancy if the mother is single, divorced, or separated, has a past history of any venereal disease, or is thought to have been promiscuous.

3. Parents and children were given miscellaneous health or medical services and syphilis could have been detected had specific examinations been made.

Usually the doctor or nurse had no reason to suspect syphilis. It would not be fair to say that a routine STS should have been done in each of these instances. However, in many instances vital information was on record that should have caused the doctor or nurse to suspect syphilis, but this information was not available and was not even known to exist. The reason for this was that responsibility for the family's health services had been divided among different professional workers who were not in close communication. The needed records (containing data on previous diagnosis or suspicion of syphilis in the family) were in other departments of the same agency or in other agencies or offices.

4. Only very rarely was evidence found that detection opportunities had been missed through failure to recognize clinical signs of congenital syphilis.

Some congenital syphilitic children show no definite signs or stigmata of their disease. The authors feel it is questionable whether doctors or nurses, other than venereologists, should try to keep the less common signs and stigmata in mind as an aid to case finding. It would be of much more value if doctors and nurses could be familiar with the syphilis history of the mother of each child served. Unfortunately, this objective may be very difficult to achieve.

Contact-tracing Opportunities

Usually no explanation could be found as to why contact-tracing opportunities had been missed. In some instances, the physician or nurse may simply have been in the habit of concentrating on the individual patient's needs, to the exclusion of the family's needs. Occasionally, a parent's statement that a child was well was accepted in lieu of an actual examination. In still other instances, known infection of the father or known congenital infection of a sibling was overlooked as a clue pointing to an undiscovered case. (Although the infected mother is the most important clue, she may have been successfully treated and have a negative STS. Or the child may not be living with his mother. Clues presented by other infected family members thus can be of vital importance.)

In studying a series of 50 cases of congenital syphilis diagnosed in various parts of the country, Bauer and Shortal (*10*) also found that children were often not examined as family contacts when the mother was found to have congenital syphilis.

Follow-up Opportunities

The most frequent type of situation in which follow-up opportunities were missed was one in which a family member was suspected of having syphilis, but the diagnosis was never completed. For example, a blood test would be taken, the report would be positive, the family member would not return for the report, and no follow-up effort would be made. In other instances the family was lost from observation after mother or child had begun treatment; again, no follow-up effort was made. Finally, some families were lost in the process of referral from one institution or private physician to another. These families were not followed to the point where the referring institution or physician knew that the family member had reached his destination and received the service for which he was referred. In many of these instances, parents and children were at least partially at fault for not cooperating with their medical advisers. However, "lack of cooperation" would at best be only a partial explanation, since action on the part of the private physician or health department was clearly indicated.

Integration vs. Fragmentation of Services

A study done in Boston several years ago demonstrated that fragmentation of health services to families resulted in serious problems in congenital syphilis control (*11*). The present study confirmed this.

One likely explanation for omission of contact tracing would be that the health care of the family was not an integral unit. Omission of follow-up suggests that even the health care of the individual was often a series of separate episodes. Detection opportunities sometimes were missed because useful information was scattered among agencies and professional persons who were not in communication.

This is a basic problem, and a solution is needed in attempts to manage a great many diseases other than congenital syphilis. A solution would require coordinative efforts within offices and also between offices. At times, record systems based on individual patients or disease categories rather than on families are a serious handicap and may need to be redesigned. To improve communication between offices, it may be possible to work out arrangements for convenient and ethical exchange of information by health workers serving the same family, for example, the public health nurse and the private physician.

Summary

There has been remarkable progress in the control of congenital syphilis, so much so that in some areas it is doubtful whether expansion of programs can be justified. However, in other areas the effectiveness of control efforts can probably be increased with little added expense.

Weaknesses of control programs can be studied by reviewing histories of recently treated cases and tabulating all control opportunities which were missed prior to diagnosis, a technique that could also be modified for use in the study of other venereal disease control problems.

Using this technique, a careful study was

made of 60 cases of congenital syphilis brought to treatment in a four-county area in North Carolina.

Judging from this series of cases, one would expect to find in many communities that more emphasis was needed on the following activities:

1. Making the initial step of detecting a case of syphilis in a family.
2. Following the chain of infection until all infected family members were located.
3. Keeping the family under observation until the possibility of future congenital infections was eliminated and any child already infected was treated.

The actual process of administering antisyphilitic treatment to infected mothers or children presents only minor problems today.

In some areas, many women still go through pregnancy and delivery without being given a serologic test for syphilis, despite laws requiring this procedure.

Mothers may be infected late in pregnancy with resultant infection of the fetus. This dangerous possibility may be overlooked if an earlier prenatal STS was negative.

Fragmented, poorly integrated health and medical services to syphilitic families appear to present a basic problem to which there is no ready or certain solution.

REFERENCES

(1) Nelson, N. A., and Struve, V. R.: The prevention of congenital syphilis. Am. J. Syph., Gonor. & Ven. Dis. **36:** 346–352 (1952).

(2) Beerman, H., Ford, W. T., Nicholas, L., and Katzenstein, L.: Syphilis. A review of the recent literature. Arch. Int. Med. **89:** 309–352; 464–519 (1952).

(3) Aron, H. C. S., Parkhurst, G. E., Rodriquez, J., and Harris, W. W.: Further observations on biologic false positive serologic tests in young children. Am. J. Syph., Gonor. & Ven. Dis. **36:** 278–283 (1952).

(4) Wright, J. J., Sheps, C. G., and Gifford, A. E.: Reports of the North Carolina syphilis studies. V. Indices in the measurement of congenital syphilis. Am. J. Syph., Gonor. & Ven. Dis. **35:** 225–233 (1951).

(5) U. S. Public Health Service, Division of Venereal Disease: Congenital syphilis fact sheet, No. 1, 1950.

(6) Venereal disease morbidity, 1951. Pub. Health Rep. **67:** 404–408 (1952).

(7) Brewer, A. F., and Olson, F. E.: Evaluation of California's prenatal law requiring a serologic test for syphilis. Am. J. Syph., Gonor. & Ven. Dis. **31:** 633–639 (1947).

(8) Ball, R. W.: Congenital syphilis. An approach to the problem via the birth certificate. J. Ven. Dis. Inform. **30:** 35–52 (1949).

(9) Fiumara, N. J.: Congenital syphilis in Massachusetts. New England J. Med. **245:** 634–640 (1951).

(10) Bauer, T. J., and Shortal, H.: Prevention of congenital syphilis. Pub. Health Nursing **42:** 81–83 (1950).

(11) Davies, J. A., and Walter, M. H.: The problem of congenital syphilis in Boston. A 2-year survey of a clinic. New England J. Med. **219:** 255–257 (1938).

NOTE: This paper is based on a separately published paper, "Reports of the North Carolina Syphilis Studies. VI. A study of missed opportunities for the control of congenital syphilis." Chapel Hill, School of Public Health, June 1952. Copies may be obtained from the authors.

The study was supported jointly by the Division of Venereal Disease of the Public Health Service, the North Carolina State Board of Health, and the School of Public Health of the University of North Carolina.

Children's Bureau Appointment

The appointment of Dr. Helen Witmer, Ph.D., as director of its division of research was announced in September by the Children's Bureau of the Social Security Administration, Federal Security Agency. A teacher, author, and a participant in many social research studies and projects, Dr. Witmer was director of fact-finding for the Midcentury White House Conference on Children and Youth. She directed a study of current mental health promotion programs for the National Institutes of Health, Public Health Service, before joining the staff of the Children's Bureau in 1951.

World Health Organization

Influenza Study Program in the United States

By DORLAND J. DAVIS, M.D., Ph.D.

AMONG the major public health problems in infectious diseases, influenza remains one of the most challenging and most important to medical scientists all over the world. Its importance is due not only to the occurrence at long intervals of severe pandemics, but also to the disruption of normal activities by illness and lost time during the less severe outbreaks occurring nearly every year. Much of our knowledge and interest has been stimulated by the experiences in 1918, when approximately 15 million people throughout the world died of influenza, and by the possibility of another such occurrence. But the heavy toll in disability and economic loss every few years, when it occurs in milder form, also makes influenza of major concern to health authorities. This disease has always been of importance to military services, and its control forms a large part of their preventive medical programs.

Characteristic of influenza are the explosive outbreaks in which the incidence sometimes involves 25 to 30 percent of a local population over a period of 2 or 3 weeks. Epidemics recur at 2- to 4-year intervals, usually but not always during the winter months. The death rate is ordinarily highest in the aged. Influenza appears in rapid sequence in neighboring communities, though sometimes intervening communities are spared; and it tends to involve large regions, even continental and world-wide. These are the general features which distinguish influenza sharply from other infectious diseases, and, prior to the identification of the etiological agents, characterized it perhaps more accurately than the clinical picture.

With the first isolation of the specific virus from human cases of clinical influenza in 1933 by Smith, Andrewes, and Laidlaw, new techniques were soon developed for the study of this disease. At present we have a number of laboratory methods for the specific diagnosis of influenza—isolation of the virus by inoculating pharyngeal washings into embryonated eggs or ferrets, complement fixation reactions, and the hemagglutination inhibition test. These methods have undergone several years of trial and now have reached the stage of development and simplicity at which they can be used with confidence by a number of laboratories, and the results can be fairly compared. They have been used extensively on a local scale and particularly in selected groups such as military or institutional populations.

Origin of Program

Since influenza is a world-wide disease, it is necessary to obtain rapidly information of its occurrence from all parts of the world. With the laboratory aids now available, much useful information can be obtained by an international system of reporting based upon specific etiological diagnosis. Such a plan was proposed at the Fourth International Congress for Microbiology in Copenhagen in July 1947. Under the

Dr. Davis is executive secretary of the influenza information center of the WHO Influenza Study Program in the United States and chief of the influenza unit in the National Microbiological Institute, Public Health Service.

sponsorship of the World Health Organization, a World Influenza Center was set up at the National Institute for Medical Research, London, to study and analyze newly isolated strains. Subsequently, at the suggestion of the WHO, the Surgeon General of the United States Public Health Service invited the participation of American investigators in the program. The Commission on Influenza of the Armed Forces Epidemiological Board had been maintaining a continuous interest in this problem and had established listening posts and a strain study center some years before. On the advice of the virus and rickettsial study section of the National Institutes of Health, the Surgeon General sponsored a meeting of representatives of the Surgeons General of the Army, Navy, Air Force, and Public Health Service. At the meeting it was decided to build the program in the United States largely around the strain study center and use the existing facilities for investigating influenza.

In 1948 the influenza study program in the United States was activated to obtain and exchange reliable information concerning the occurrence of outbreaks of influenza in the United States and throughout the world, to isolate specific viruses involved, and to study and compare these with respect to their antigenic characteristics. In addition, it was hoped that this information would be useful in determining the effectiveness of current vaccines and in the selection of strains to be used in the vaccines.

Organizational Set-up

The program operates under an advisory committee composed of representatives of the Surgeons General of the Public Health Service, Navy, Army, and Air Force, and the Armed Forces Medical Policy Council of the Department of Defense, and the Bureau of Animal Industry, United States Department of Agriculture, who are responsible for over-all policy.

The actual functions of the program are carried on more or less autonomously by seven regional laboratories in various parts of the United States and one in Puerto Rico. These laboratories, which integrate the program in their respective areas, enlist the assistance of other laboratories of the area. They distribute specific influenza antigens and antiserums to their area collaborators, and they identify as influenza virus those agents they or the collaborating laboratories have isolated before the isolates are transmitted to the strain study center.

Collaborating area laboratories, selected for each area by the corresponding regional laboratory, serve as lookout posts to report outbreaks of influenza; perform serologic tests with the serum of suspected cases; and, in some cases, isolate virus from patients with influenza. All of these laboratories have been selected on the basis of their interest and particular competence in diagnosis of influenza, and they represent university, hospital, Federal, State, and municipal laboratories.

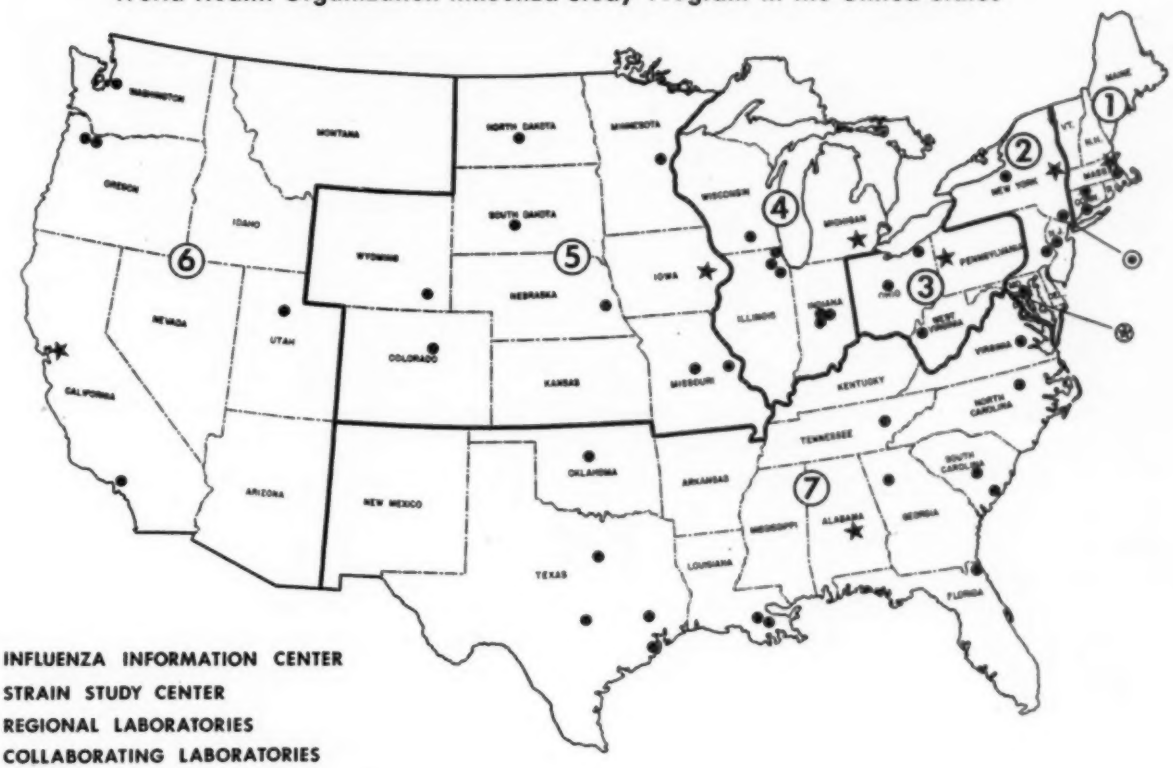
Information is obtained from the six Army medical laboratories in the United States, other Army medical laboratories in Europe and Japan, the Department of Virus and Rickettsial Diseases of the Army Medical Service Graduate School at the Army Medical Center, Naval medical laboratories at Great Lakes, Ill., and elsewhere, and Public Health Service laboratories at the National Institutes of Health and Communicable Disease Center. The influenza strain study center is located at New York State University Medical Center, Brooklyn, N. Y. Strains of influenza virus newly isolated from patients by regional or other laboratories participating in the program are sent to the strain study center for antigenic analysis.

The influenza information center, located at the National Institutes of Health, Bethesda, Md., is responsible, under the advisory committee, for receiving and disseminating information on outbreaks of influenza and the strains of virus causing these outbreaks; for establishing a coordinated series of strategically distributed regional and area diagnostic or research laboratories for the isolation of new strains of influenza virus; and for aiding in arranging conferences concerned with problems of the program.

World-Wide Circulation

Current reports from the participating laboratories are coordinated with those from State

World Health Organization Influenza Study Program in the United States



INFLUENZA INFORMATION CENTER
STRAIN STUDY CENTER
REGIONAL LABORATORIES
COLLABORATING LABORATORIES
REGIONAL BOUNDARIES

Numbers indicate study areas

NOTE.—The strain study center is at the State University of New York, Brooklyn, and the influenza information center is at the National Institutes of Health, Bethesda, Md. A regional laboratory is located in Puerto Rico, and Alaska and Hawaii each have a collaborating laboratory.

epidemiologists and published weekly in the *Communicable Disease Summary* and the *Morbidity and Mortality Weekly Report* of the National Office of Vital Statistics, Public Health Service. These reports are sent to health authorities in the United States and other countries, the World Health Organization, the World Influenza Center in London, and others interested. In unusual circumstances foreign laboratories and centers are informed by cable.

In Canada a similar organization with the same objectives has been in operation and provisions made for exchange of information and study of new strains of virus.

With the development of virus laboratories in the countries of Central and South America, new opportunities are being offered for the collection of additional information of great importance to our knowledge of the spread of influenza. Plans are being developed by the Regional Office for the Western Hemisphere of the World Health Organization (Pan-American Sanitary Bureau) to initiate an expansion of the program to include all countries of the Western Hemisphere in a coordinated program of influenza reporting and study of newly isolated strains. Such an extension of the present programs in the United States and Canada should greatly enhance the value of the worldwide effort to solve some of the problems in the epidemiology of the disease.

Influenza Occurrence Last Winter

The first indications of influenza during the winter season of 1951–52 were received from Utah, where there was a sharp outbreak of influenzalike disease in the cities of Ogden and

Provo during the latter part of December 1951. Influenza B virus was recovered from the throat washings of two of the cases. Early in January 1952 a report of influenza was received from a military installation in California. Serologic tests identified it as type B. In the middle of January, cases of clinical influenza were reported in the western part of Kentucky, but opportunities for laboratory confirmation were lacking.

During the remainder of January reports of outbreaks of clinical influenza were received from: Nevada, California, Oregon, Little Rock, Ark., and from the Naval Training Center, Bainbridge, Md. Subsequent laboratory studies resulted in the isolation of influenza virus type B from cases in Little Rock, and both type B and A′ from the Naval Training Center. Throat cultures performed on a large number of cases at Bainbridge revealed the presence of beta hemolytic streptococci in a high proportion also. Serologic studies in California in the civilian population and military installations indicated the infection was type B.

Early in February reports were received of outbreaks of influenzalike disease in Nebraska, Ohio, and Frederick, Md. Influenza virus type B was recovered from cases in Frederick. In military installations in New Mexico, Illinois, and New York there was an increased prevalence of respiratory diseases, and subsequent serologic examination showed a number of positive serologic tests for influenza type B from these places. During the remainder of February influenza confirmed by isolations of virus and serologic tests was reported in Norfolk, Va., Washington, D. C., Indianapolis, Philadelphia, Boston, New York State, South Carolina, and Texas. Reports continued to be received from California, where the disease occurred in numerous areas throughout the State.

In early March, influenza, type B, was confirmed by positive serologic tests of influenza reported from Syracuse, N. Y., and New Haven, Conn.; and in the middle of March influenza type B virus was isolated in Iowa during the course of an outbreak. During the remainder of the month, the disease confirmed by virus isolation was reported from Michigan and New York City. The report from the WHO Influenza Center, Canadian Department of Health and Welfare, indicated that an outbreak of influenza in Edmonton, Alberta, occurred in the latter part of March. During the latter part of May and early June influenza occurred in Puerto Rico and was diagnosed by serologic studies as type B.

Type B Predominant

It is apparent that influenza type B infection was widely distributed throughout the United States beginning in December and persisting through March and possibly April. The outbreaks appear to be localized, and certain cities and areas seem to have escaped almost entirely. There has been no evidence of a uniform zonal spread of the disease since it appeared simultaneously in widespread areas, often skipping intermediate points between foci. While the disease affected all age groups in the population, school-age children and young adults seemed to be affected most frequently. With the exception of three isolations of A′ virus and a few positive serologic tests for A′, type B virus was incriminated in all outbreaks throughout the country. Reports from the regional laboratories indicate that these strains of type B virus were more similar to strains isolated since 1945 than to the earlier strains such as the Lee. Influenza C was identified by virus isolation in Illinois and by serologic tests in six cases in Michigan during the past winter.

The strain study center received 20 strains of influenza virus isolated during the past season. They all appeared on preliminary examination to be type B and reasonably closely related to recently isolated B strains. However, they seemed to be less closely related to the Seattle/49 strains than those received in recent years. Strains isolated and examined at the University of Michigan with ferret antiserums appeared to be closely related to the Allen (1945) strain but not to the Lee. Likewise, a number of strains isolated in Norfolk, Va., and examined at the National Institutes of Health were similar to the 1210 strain (1950) and the Warner (1948) but not to the Lee. Like observations were made at the Johns Hopkins University and some regional laboratories.

Examination of the National Office of Vital Statistics reports of deaths from influenza and pneumonia in 58 cities in the United States in-

dicates that during the winter season there was no appreciable increase in the mortality rates for these diseases. Only two areas in the country, New England and the East South Central States, showed a slight increase during March. In no area was the increase greater than in 1951.

Reports which are summarized in the two accompanying tables were received from 36 of the 54 participating laboratories. A total of 92 isolations of virus have been reported, 89 of which were type B, and the remaining 3 strains were A′. The majority of these were from cases having onset during the month of February. The second table shows a total of 650 cases diagnosed by serologic tests (hemagglutination inhibition and complement fixation tests) with 608 tests positive for type B and 42 for A and A′.

Table 1. Isolations of influenza virus reported by participating laboratories of the influenza study program in the United States, 1952

1952, month	Date of onset known		Date of testing, onset unknown	
	A′	B	B	C
January	2	4	0	0
February	1	52	1	0
March	0	27	2	0
April	0	3	0	14
Total	3	86	3	14

Table 2. Positive serologic tests (hemagglutination inhibition or complement fixation) for influenza reported by participating laboratories (civilian and military) of the influenza study program in the United States

1952, month	Date of onset known		Date of testing, onset unknown	
	A, A′	B	A, A′	B
January	5	51	0	10
February	12	155	13	52
March	4	241	3	86
April	1	8	0	5
Total	22	455	20	153

Summary

It would appear that while influenza type B has been locally prevalent throughout the United States during the winter months and in some instances has had a high attack rate, there was no significant mortality associated with the disease in 1952.

Organization of the Program in the United States

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Dr. Max Levine, Territory of Hawaii Department of Health, Honolulu
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Ideas

Tenant Nurses

CUYAHOGA COUNTY, OHIO. Building homes for their families and establishing nurseries for their children has been suggested here as one way to attract married nurses to a hospital in a rural area.

The addition of 260 beds this summer increased the facilities of Sunny Acres Tuberculosis Hospital at Warrensville to a total of 650 beds. The success of Cuyahoga County's tuberculosis program depends on getting enough nurses to staff the hospital.

The plan proposed for Sunny Acres calls for building individual homes to house the families of married nurses on farmland adjacent to the hospital, charging a reasonable rent, and amortizing the cost to the county over a 25-year period. Single nurses also may be attracted to the country life and the individual homes at Sunny Acres. It is estimated that the individual houses would be cheaper per square foot than a dormitory-type nurses' home.

The Cuyahoga County tuberculosis controller, Dr. Joseph B. Stocklen, has presented the idea to the trustees of the hospital and the county building commission who are investigating its possibilities.

Film Saving

LOS ANGELES COUNTY, CALIF. The preservation of negative X-ray films taken in mass surveys is not a storage or reference service problem in the County of Los Angeles Health Department.

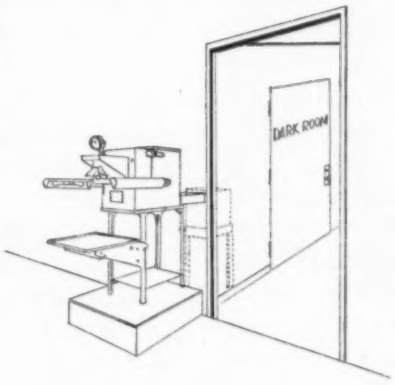
After reading, films are inserted in folded cards which are then metered and mailed either to the persons surveyed or to the physicians of referred patients. Past practice has proved the procedure to be economical and satisfactory.

The cards are of postcard color and quality. For 4- x 5-inch films, the size is 5½" x 8½" before folding. Standard postcard size, double-fold, is used for 70-millimeter films. At the time of exposure, the cards are stamped with the patient's control number and addressed. On the reverse side of the card, a printed statement informs the recipient that the film is negative and that he is responsible for its safekeeping.

As a further economy, the health department finds the 4- x 5-inch film of increasing usefulness in chest reviews where the large 14- x 17-inch film was formerly considered necessary.

Nonstop Photocopying

DES MOINES, IOWA. Where a darkroom is available, a satisfactory arrangement for speeding the development process is provided by cutting a hole in the wall of the darkroom and running the conveyor belt of the photocopy machine through the hole so that exposed paper can drop into a box inside the darkroom. See the accompanying sketch.



This device permits continuous operation and rapid development. It is unnecessary to remove the transfer box at any time.

Seminar For Supervisors

NORTHERN VIRGINIA. Health officers and other public administrators are equipping themselves for more effective supervision of personnel by attending an evening seminar for supervisors.

The seminar is sponsored by the cities of Alexandria and Falls Church and the counties of Fairfax and Arlington. The four Virginia communities are a part of the metropolitan area surrounding Washington, D. C.

The University of Virginia gives six credits to participants. The seminar meets once a week for 3 hours and is supervised by Dr. Roland Eggers, director of the university's department of public administration.

Health officers, city managers, county executive officers, police superintendents, welfare directors, recreation directors, and directors of public works have already attended the course.

Discussion topics in the weekly sessions have included—

The supervisor's responsibility for getting the work done.

Orienting a new employee.

Practicing and reviewing methods of instruction.

Conferences and meetings as instructional devices.

The installation of new methods.

One Tape: One State

NEVADA. The health department has full radio coverage of the State with a single tape recording of its weekly 15-minute health talk.

Several years ago, a Reno radio station agreed to broadcast a 5-minute weekly dialogue prepared by the State department of health. The radio studio provided the narrator. A few months later, it invited the health department to lengthen the script to 15 minutes and readily agreed to make an extra tape recording of each program.

Las Vegas, Elko, and Ely stations joined the broadcast series. The one additional tape is all that is needed, because the four stations are remote from each other, and simultaneous broadcasting is unnecessary. Thus, the health department's message reaches the north, east, south, and west areas of Nevada.

The radio stations speak well of the quality of the programs, which are strictly a home product. Limited personnel and budget need not stymie public health information.

Establishing Housing Standards for the Aged

By JACK MASUR, M.D.

THE PROBLEM of providing housing for older people is by no means a new one. Last summer in Brussels I met an old friend, a Dutch physician and director of an excellent small hospital, who brought this fact forcefully to my attention. During the meeting, we discussed at some length the new and highly important developments in the housing of the able-bodied aging. I noticed that my friend seemed impatient with the discussion and asked him what was wrong. He said, "I'll tell you about it later."

About 2 weeks later, on our way to visit some health officials in Holland, we stopped in the city of Delft. Here he took me down a pleasant street. He stopped before a small door in a neat, red brick wall, opened the door, and stood aside for me to enter. We stepped into a beautiful garden, surrounded by a quadrangle of single-story rooms. Each room seemed to have different furniture, and there were nicknacks of all sorts about—photographs, pottery, books. My friend explained that these rooms were the homes of elderly women who had brought in their own furniture and other possessions so that they would feel at home. Some of them were out visiting friends, he said. Others were shopping or working a few hours. I expressed a great deal of satisfaction with such an arrangement for the care of able-bodied aged ladies. Then he took me to the cornerstone and pointed to the date: "Established in 1607."

He said, "Now perhaps you will understand my impatience with the great new thinkers who have arrived at the principle that it is highly desirable to provide older people with the opportunity for some independence of living and some self-reliance. We Dutch thought it was a pretty good idea 350 years ago."

Many of you are now faced with the task of establishing standards of institutional care for the aging, as provided by the recent amendment to the Social Security Act. Congress outlined the problem as follows:

"Tragic instances of failure to maintain adequate standards of care and adequate protection against hazards threatening the health and safety of residents of institutions emphasize the importance of this function of State government. . . . Persons who live in institutions, including nursing and convalescent homes, should be assured a reasonable standard of care and be protected against fire hazards, insanitary conditions and overcrowding."

This amendment will support the efforts of public and private agencies to strengthen institutional care, services, and programs. But our responsibility reaches beyond this immediate requirement of the Social Security Act. We are concerned with housing for all the aged—the able-bodied who live in public and private institutions, the sick in nursing and convalescent homes and in hospitals, and the great majority of our elder citizens who live in private homes.

A beginning has been made in the establishment of standards of care through such organizations as the American Association of Nursing Homes and many State organizations. Most

Dr. Masur, an Assistant Surgeon General, is chief of the Bureau of Medical Services, Public Health Service. *This paper is a condensation of remarks made on July 26 before the fifth Annual Conference on Aging at the University of Michigan, Ann Arbor.* (*See page 1197.*)

States have limited standards for the licensure of homes for the aged, though many such standards hardly deserve the name.

It has been said that much more information is needed in the field of geriatrics before standards can be established. Obviously, we need to know more about chronic diseases, the physiological process of aging, the effect of diet on longevity and on glandular activity, and the work capacity of older persons. We must learn more about the psychology of aging and more about what older people want. But there is already a considerable body of knowledge, and we dare not delay constructive action indefinitely on the pretext that we need additional information, data, and guidance.

From Ideas to Reality

The establishment and maintenance of adequate standards in a field as complex as this is an enormous task. No matter how great the need, no matter how fully the importance of such standards are understood, the task of transposing them from thought into reality is enormous. Still, it has been done in other fields; for example, in hospital care.

In 1940, when the Hospital Survey and Construction program was being seriously discussed by the hospital and medical professions and the Public Health Service, the same problem arose. There was no uniform pattern of standards for hospitals, and there was grave doubt as to the possibility of establishing such standards on a systematic basis. Many felt that such action would be an invasion of the rights of the States, local communities, and private interests. Nevertheless, a few far-sighted hospital people insisted that standards could be established.

These people called upon leading physicians, hospital administrators, architects, and other interested persons to assist in drawing up hospital care and construction standards. In 1946, these standards, with innumerable variations to make them adaptable to all State and local needs, were made the minimum requirements of the National Hospital Survey and Construction Act. Communities applying to their States for funds under this program were required to meet these standards. In a short time, States and communities throughout the country had accepted and carried these concepts forward to practical application.

Major Steps

With certain variations, the three major steps taken in the development of standards for hospital construction and care can be used to develop standards of housing for the aged.

First, you who are directly engaged in the care of the aged can select what you believe to be the minimum standards. Your knowledge and your experience are invaluable. Though you may feel that your information is incomplete and inadequate, you are the only experts in the field.

There are several sets of standards available which can serve as guides. The Welfare Council of New York City has issued a pamphlet called "Suggested Standards for Homes for the Aged." The Methodist and the Lutheran Churches have set up standards for the management of their own homes and hospitals. The National Committee on Aging is now working on a set of standards and a subcommittee of the Committee on the Hygiene of Housing of the American Public Health Association is developing a special report on housing for the aged. This latter committee has also established a guide, "The Basic Principles of Healthful Housing," which can serve as an excellent framework for developing standards.

Practically every health department in the country has had experience with the development and administration of standards programs for hospitals and related institutions. Obviously, the State health department can be a key official agency in the formation of these standards.

The second step is really a check and balance on the first. When a set of standards has been drawn up, a group representing all interests concerned with problems of the aging should be called together. This group should include physicians, psychiatrists, and welfare workers; representatives from the health department, fire department, building inspector's office, and any other branch of the municipal government concerned with either shelter or care of the

aged; and representatives of industrial, labor, religious, civil, and other local organizations. Do not, under any circumstances, limit the membership of such a committee to a single group of health officials, welfare authorities, or architects. It is invaluable to obtain the support of all who are concerned with the aging.

This step can lend prestige to the program. It can contribute to the workability of the standards, and it can establish a foundation of professional and official support that is essential to their acceptance.

The third step is to give the standards legal status in order to prevent abuse by unprincipled persons. Here, again, the backing of all the above-mentioned groups must be obtained. Ultimately the translation of the standard from paper to reality depends upon widespread public understanding and active support.

A Broad Approach

I would like to emphasize the importance of a broad approach to the problem of housing for our older citizens. Housing is so complex and is woven in so many ways into our whole pattern of living that significant progress in providing housing for a major segment of older persons can be achieved only as basic progress is made in providing decent housing for the Nation as a whole.

Substantial reduction in the cost of housing for aged persons will be achieved only in the measure that we reduce the cost of housing for all people. Extensive revisions and improvements are needed in designs, materials, construction methods, financing, and even perhaps in our concept of housing if real progress is to be made in cost reduction.

Another basic consideration is the important financial and therapeutic relationship of housing to medical care and hospitalization. Although this relationship is important for the general public, it is particularly significant for the aged, infirm, and chronically ill.

Recent pilot studies in home care for prolonged illness indicate that patients who do not need hospitalization but require more care than just out-patient clinical services are more comfortable and get well more quickly in their homes than in a hospital. The economic differences are even more striking. Today, hospital costs are about $20,000 per bed. If the average cost of hospitalization per patient-day and the average cost of home care per patient-day are compared, the cost of care for a patient at home is one-fifth to one-third the cost of hospitalization.

We are particularly interested in good housing for all our older people because we realize that medical care facilities are seriously overcrowded and must be saved for those patients who need hospitalization. Furthermore, the lower cost of home care will allow more funds to be used for better housing, education, and food. Unfortunately, there are several factors limiting the use of home care, particularly for the low-income persons who most need its financial advantages.

According to the 1950 housing census, there are at least 16,000,000 dwellings that have one or more basic health deficiencies. For example, more than 12,000,000 urban and rural dwellings have no bathtub or shower, and nearly 8,000,000 urban and rural dwellings have no running water inside the structure. Surprising as it may seem, only about 40 percent of these health deficiencies occur in rural farm areas. The millions of American citizens living in such housing know that it would not be adequate, let alone suitable, for use in home care of a patient. Hospital administrators are all too familiar with the need to postpone the discharge of a large number of patients because they would have to return to housing totally unsuitable as a convalescent environment.

What is to be done to bring about conformity with even the present established standards of housing for the population as a whole—the simple basic requirements necessary for elementary decency, cleanliness, and health?

Rehabilitation of Substandard Housing

An attack on housing conditions is being made through new construction, redevelopment, public housing, and special institutional housing. But the opportunities for improving existing substandard housing by the application of health regulations have been given far too little attention. Certainly a tremendous volume of new housing is needed. But the housing problem can also be attacked by

prevention of accelerated rates of deterioration of dwellings and their environment and by rehabilitation of existing substandard housing that has a sound frame and foundation. In short, prevention, rehabilitation, and production are all necessary to improve housing conditions. As general housing conditions are improved, progress will be made in the provision of decent housing for aged people as well.

It has been demonstrated in more than a score of communities in the last few years that rehabilitation of substandard dwellings is practical and productive of immediate results. It is no panacea; it is not the end; but it is a necessary and salutary beginning. After this fundamental approach has been made, attention can be given to other needs. We can begin to consider standards for institutions and for care for the aged.

Public Interest and Support

Of prime importance before effective standards can be established is recognition of the fact that the public must be interested in the problems of the aging. The formulation of public policy in this regard is of the essence.

During the past few years there have been dozens of magazine articles and books on the aging, even a play. Today there is far more interest than there was at the end of World War II. But this appearance of interest does not constitute the backing necessary to transpose a set of professional standards into a practical and acceptable way of life. Specific action must be taken.

First, I suggest that you look to your State health and welfare departments as the official agencies to provide leadership in establishing and maintaining standards; second, crystallize your ideas about standards of facilities and care, and set them down in detail; third, seek out all interested persons and groups concerned with the problems of aging and enlist their aid.

Perhaps public understanding and support can best be achieved by forming a local organization which can serve as a rallying point for all who are interested in the problems of the aging. When such organizations are formed in many communities, in the States, and in the Nation, they will raise a voice that must be heard. This voice will provide the support necessary to give legal status to the establishment and maintenance of the standards, which can then serve as the springboard for national action.

To interest the public in making a reality of a standard of decent shelter we must mean business; we must close our ears to the counsel of despair and disillusion. Throughout history there have always been timid souls who would not venture to walk to the rise of the next hill. There have been those whose fears of disaster paralyzed their will to act. But the majority force in society today is the force that has a will to grow and to live.

Rehabilitation Reduces Assistance Cases

During the past fiscal year, 63,632 disabled civilians were rehabilitated, and more than 12,000 of these were public assistance recipients, the Office of Vocational Rehabilitation recently reported. The successful employment of one out of five rehabilitated disabled persons meant an aggregate earning of $22½ million for this group which the year before received about $8½ million in assistance.

This percentage of rehabilitated persons removed from public assistance case loads was the highest ever recorded; 12 percent was the figure for the preceding year. Taken from the case load were 5,200 disabled parents in families who had received aid to dependent children; 1,200 who had received aid to the blind; 800 who had received aid to the permanently and totally disabled; 400 who had received old-age assistance; 4,000 who had received general assistance, and about 400 who had received unspecified aid.

Housing and Health Facilities For Our Senior Citizens

LIVING arrangements for older people who are well, sheltered care and medical supervision for those who are ill and feeble, and custodial care for those whose health is uncertain, must be tailored to meet individual needs and wants. This threefold emphasis on personal desires, and on recognition of individual differences among senior citizens in our population, keynoted the 3-day conference on "Housing the Aging" held July 24–26, 1952, at the University of Michigan, Ann Arbor.

We Grow Older

The significance of shelter for the aging and its relationship to health was underscored at the conference by realization that, although the decrease in mortality at the middle and upper ages has not been conspicuous within the last half century, it has been considerable at the younger ages, resulting in a material increase in the number of people attaining maturity and old age. This condition is likely to improve and continue, raising the proportion of older persons in our population.

Population statistics for men and women present contrasts which must be considered in meeting the problems of older people, particularly with respect to their housing and their maintenance. In 1950, in the 65 and over age group, women exceeded men by over one-half million. For every 100 women there were fewer than 90 men. Perhaps more important is that there is a higher mortality among males and that women usually marry about 3 years earlier than do men. Widowhood is a characteristic marital condition of older women. In 1950, more than half the women of 65 and over were widows, but only about one-fourth of the men were widowers.

Where Older People Live

Of the 12.3 million persons aged 65 plus in 1950, and representing 8.1 percent of the total population, about 94 percent (or 11.6 million) lived in households. Only 6 percent, about 700,000, lived in rooming houses, institutions, hotels, and homes of various types. Of those 65 and over living in households, the largest group, comprising 5.4 million individuals, were married couples living in their own households. The next largest group of individuals lived with relatives and numbered 3.9 million.

According to a special sample study by the Census Bureau and the Housing and Home Finance Agency, about two-thirds of our older families lived in nonfarm dwellings in 1950 which had modern conveniences. The other third lived in substandard housing ranging, in condition, from dilapidated to without running water or private toilet. One important clue may be found in the Census Bureau's estimates of family income for 1950; 51 percent of all families in which the family head was over 65 had incomes of less than $2,000 a year, and more than 30 percent of them had incomes of less than $1,000. In this group, those who lived alone or with nonrelatives fared even worse—over 89 percent had annual incomes less than $2,000, and more than three-fourths had incomes less than $1,000. These resources, unless coupled with savings or other income, cannot rent or buy homes.

Older people, like the rest of the population, have concentrated in the urban areas, it was brought out in the discussions. Around 1945, about 60 percent of the total population as well as the aged fraction of the population were classified as urban dwellers. Since that time, the elder group, congregating in city centers, has increased faster than the general popula-

The 5th Annual Conference on Aging was held at the University of Michigan in July. Represented were governmental agencies, real estate and housing interests, both public and private, university and professional groups, architects and builders, nursing and convalescent home organizations, and labor unions and hospital authorities. Over 500 attended the sessions, which were sponsored by the university in collaboration with the Committee on Aging and Geriatrics of the Federal Security Agency, the Federal Housing and Home Finance Agency, and the Michigan State Medical Society.

The conference provided opportunity for an integrated review of knowledge about the housing of healthy, disabled, and sick older people. A full accounting of the discussions will be published as proceedings in the near future.

At this time, *Public Health Reports* presents on pages 1192–95 Dr. Masur's paper on the establishment of housing standards, and the accompanying report of Irving Ladimer which summarizes the health features of the conference. Mr. Ladimer, with the research planning branch of the National Institutes of Health, Public Health Service, participated in the conference.

Housing for the aging is a field of challenges and unknowns, calling for incisive thinking. Even where facts are agreed upon, different emphases modify their use and implications. Dr. Masur's paper and Mr. Ladimer's report reflect the variety of interests and opinion which so often characterizes discussions of health and medical services for our older citizens.

tion. They are found predominantly in the large industrial States. New York, Pennsylvania, California, Ohio, and Illinois claim about 40 percent of the aged population.

Neighborhood Demands and Planning

The conferees saw the need for development of new community understanding to offset fears concerning the burden of old age and misconceptions concerning the wants and requirements of older individuals. It was clear that older people strongly prefer to remain independent, to earn their own way as long as possible, to remain active participants in their communities, and to make a contribution in keeping with their experience and maturity. In short, they want to live their own lives.

As one participant declared, children have the right to think and act as they wish, and we have the right to think and act as we wish.

Whether they prefer individual homes or group living, older people want to be near public transportation or, preferably, within walking distance of community facilities such as stores, churches, libraries, and movies. They want to be able to carry out the same kind of activities as others: shopping, visiting relatives, relaxing, and working when possible. They do not wish to be segregated in planned projects, and have no great desire to move to new communities. Although there is a sizable group that looks forward, upon retirement, to moving back to the farm or to the sunshine States, most older people finally realize that they want to continue their familiar activities.

Conferees admitted that there were many individuals who did find it possible to carry out their youthful dreams of a retirement devoted to hobbies, to travel, or to new ventures, but that most of them continued lifetime pursuits if possible. Older individuals want to be near medical facilities and want doctors, nurses, and family confidants available in their later years. This yearning is particularly important when health is failing and problems of remaining healthy become paramount. The ability to get up and go cannot be taken for granted.

Consequently, neighborhood planning plays an important part in meeting the needs and desires of older people. Although there have been a number of very highly successful group living arrangements established for older people, the conference recognized the basic objective of keeping a place in the main stream of life for our older citizens.

The conference suggested that zoning ordinances and related land use control should be examined critically. Suitable housing for the

physical and emotional requirements of the older ones should be widely distributed throughout the community. Consideration should be given to population density, need for privacy, parking, and community centers. The development of neighborhoods which provide a variety of conveniences—from small neighborhood stores to large shopping centers—requires large-scale planning rather than lot-by-lot consideration.

Private enterprise representatives asserted that the home-building industry can achieve results at the instigation and promotion of community leaders. There was also strong feeling, on their part, that leadership for such improvement would have to come from informed consumer action—possibly through public agency cooperation and control.

Design and Sheltered Care

In designing housing for older people it was recognized that there are certain conveniences and safety measures which are important. Today, builders tend to consider the young family and to overlook the needs of later years.

However, it was the consensus of the conference that homes suitable for the young family were essentially adequate in construction, in design, and in durability for older people. True, certain additions or improvements are available and should be introduced to meet individual physical and psychological problems and declines in basic abilities in much the same way as changes are made when children are introduced into a home. But housing experts pointed out that relatively few older people require significantly different or special features in homes, apartments, or institutions. Basementless homes and single-story houses were suggested as features which would be preferred by many families but which would be particularly adapted to the shrinking capacities of the senior group. Here again it was affirmed that aged people are individuals—human beings—and not a monolithic group.

Major issues at the conference of special importance to public health officials related to requirements of our elders for sheltered care and for medical supervision. Conference discussions centered on the need for appropriate participation by health workers in city planning, in home design, and in building. Health workers must gain more insight into the factors relating to population change, education, family life, creative and recreational activities, religious programs and services, income and resources, and community organization. Healthful living and creative contribution depend on all these.

The doctor, the nurse, and the health worker, whatever his specialty, must be observant, sympathetic, and alert in recognizing these varied elements and the opportunities to cooperate with other professions and disciplines. The health officer, potentially, if not always in fact, is a community leader when it comes to health education and provision of medical care. The special skills and experiences which medicine and public health training have to offer can probably best be evidenced in the provision and management of general and special hospitals and neighborhood clinics and in the support of the large variety of nursing homes, convalescent homes, and old age institutions.

Quite early in the discussion of supervised care for older people, it was concluded that there were three distinct but overlapping groups of older people: the able bodied; the infirm; and the disabled—counting those acutely ill and those suffering prolonged ailment or other conditions requiring medical or special care.

It was agreed that mostly it was unnecessary to provide institutional care and complete medical supervision for older people as such. Even for the unwell with long-term stabilized infirmity or for older people with periods of good health matched by strain or fatigue, there may be question about utilizing expensive hospital beds and providing full medical treatment. Many such persons probably need, more than anything else, just assurance, sympathetic understanding, and general surveillance of their health, with, of course, suitable treatment available for acute conditions.

There was disagreement among the conferees on the advantages of geriatric units or of special facilities for infirm older patients which would be physically attached to and integrated with general hospitals. Is it more feasible and economical perhaps to establish in separate institutions patients who are well as often as they are sick?

No disagreement existed, however, concerning the need for a close relationship between the general hospital and such centers, for staffing them with well-trained doctors, nurses, and medical aides, and for equipping them with general and emergency treatment facilities. It was pointed out that in a hospital an older person may face the possibility of realizing a surrender of independence and responsibility which is accompanied by a loss of sense of security. He sometimes associates illness with aging.

In emphasizing the desirability of closely relating the hospital and geriatric unit for infirm older people, these advantages of such an arrangement were noted: It allows approved medical supervision. It provides better records through integration with the hospital system. It offers access to hospital facilities, especially for diagnosis. It permits lower capital outlay for geriatric structures and lowers over-all unit costs. And, finally, it lessens the problem of moving the older person from one unit to another.

At the same time, older people who are confined to separately constituted public or private rest homes or to custodial institutions have a constant fear of falling ill, unless they have confidence that the organization can quickly provide necessary medical care.

Older people in good health usually do not need institutional care. Even without family or resources, it is possible for an older person to set up a new home with similar friends in a regular community or through congregate living arrangements, if he has been stimulated and aided in making the new arrangements. But, the conferees noted, there is a fallacy in not recognizing that people do become feeble and infirm as they grow old so that some type of medical supervision for older folks is essential, whether they live independently or live in a home that is essentially a boardinghouse or an old age institution.

Ideally, the services of both a general hospital and of a specialized institution should be provided for older people, with the closest interplay of staff and exchange of services. Older individuals may then proceed at their own rate in keeping with their abilities and their interests. They have the assurance that a helping hand is ready when they falter.

As one speaker summarized: "Although the problems of the aged and those of chronic disease are not synonymous, they are so closely interrelated that they cannot be studied in separate parcels."

Nursing and Convalescent Homes

Nursing and convalescent homes and other institutions for the aged, needy, or infirm may be variously classified according to the purpose of study or function. For example, they can be grouped by ownership, that is, public or private; and by size, structure, or nature of service provided. The most useful classification probably is the last, nature of service.

Statistics on the number of such institutions are not yet validated because of State differences in definition, licensure requirements, and regulation. A listing of institutions in 1948 and 1949 prepared for the 1950 census indicates that there were then about 5,200 old age homes. About a fourth of these were public; another fourth were private and nonprofit; and half were proprietary establishments. In that list, there were also 6,400 nursing and convalescent homes, mostly private commercial ventures.

Many conference participants strongly assented to the proposal that the quality of service to be available at nursing homes should, at most levels, be of the same caliber as that provided in hospitals. Financial studies covering a wide range of nursing, convalescent, and other institutions which provide medical care indicated that costs of care in such institutions came to about two-thirds the cost of general hospital care.

One participant who had made a survey of the several types and categories of homes caring for old people and other individuals not requiring hospitalizing urged the conference to promote uniformity of service standards for all places accepting responsibility for sheltering persons who require nursing assistance or medical supervision. The speaker said that a nursing home is a substitute for the patient's own home—not a diagnostic or specialized treatment facility. Hospitals are available for diagnosis and special treatment and should be integrated within the pattern of geriatric care. It was recognized that, traditionally, professionals in

the hospital field and in the area of chronic illness recommend special facilities and different standards for the major categories of facilities. If the service classifications in the homes were well accepted and were followed, and if older people were properly diagnosed, this uniformity could be achieved. Since there is considerable lack of uniformity as to designation, size, and legal status, it was felt that at least all facilities represented as providing medical care should be held to a basic standard.

All participants strongly emphasized that both the general hospital and the nursing home, or the home for the aged—under any name—must go beyond custodianship to engage actively in rehabilitation programs. As put by one speaker, the operation must constitute "reverse social service," with strong accent on returning patients to their homes and communities rather than placing patients in institutions. Some participants went so far as to declare that there was no such thing as chronic illness if it were understood within the meaning of a generation ago as hopelessly disabled or incurable—that there was only acute, subacute and inactive disease, always allowing the possibility of cure, restoration, and rehabilitation.

Problems and Standards

Nursing and convalescent homes, it was constantly noted, have various names. They are strictly regulated in some States and are not even registered in others. Some are subject to State legislation and local ordinance. They provide a variety of services, in physical structures of all types. It is estimated that nursing, convalescent, and boarding homes of various types care for well over 100,000 individuals annually, and constitute an important and indispensable adjunct to the Nation's hospital beds. In 16 States for which data over a period of years were collected, there would appear to have been in 1950 an average of 1.05 nursing beds per 1,000 population, or about a third of the non-Federal general hospital beds in those States.

Those homes which assume responsibility for patient care and treatment under suitable medical standards for cure and rehabilitation should be able to provide the physician and his patient with some of the same services a general hospital provides with the exception of specialized diagnostic, laboratory, and surgical and technical service. Such homes could profitably be used as adjuncts to general hospitals in the best sense with special concern for the relatively stabilized infirm and for those wavering between good and ill health.

It was the plea of the nursing and convalescent home operators attending the conference that the medical profession should give more attention and recognition to these facilities and should take responsibility for educating owners and operators concerning their needs in order to elevate standards. But, they added, if all superior features of design, staff, and equipment were incorporated, the attractive lower rates which such homes now offer might no longer be possible. At present, estimates indicate that, for the best-staffed homes providing care of good quality, operating expenses are from two-thirds to three-fourths that of general hospitals in the same area, and their daily rates are commensurately lower.

Usually, nursing and convalescent homes have been established in structures and large old mansions which have been equipped for bed and ambulatory care. These homes do not usually incorporate desirable design nor are they always easily accessible or close to medical centers.

Nursing home operators admitted that advances were desirable, but that they could be achieved only by increasing rates. There is, in many States, the essential division of responsibilities between regulation and standard setting by one State agency (the health department, for instance) and payment for care of public assistance and State ward cases by another agency (such as the welfare department). The first seeks to improve service and thereby raises operating expenses whereas the latter naturally seeks to get maximum service at the customarily low rates determined by the legislature. The conference recognized that the improvements sought could not reasonably be provided unless public payments were increased.

In one of the closing conference addresses on the subject of establishment and maintenance of standards, the speaker strongly advocated immediate action on the basis of available knowledge. Three steps were outlined:

Agree on minimum standards.

Get community support and aid from groups representing all interests.

Then get legal status for the standards approved.

Many suggestions were offered for improvement of design, architecture, engineering, and management of the nursing or convalescent home, but no standard pattern was generally accepted by the conferees.

It was agreed that any plan should respond to the program or objective of the institution. Popular and widely advertised features such as treatment rooms, equipment, day rooms, and recreational areas, individual bathtubs and the like, while helpful, are not always essential for the provision of high-quality care. More important are factors of leadership, motivation, and adequate staff training. Remodeled old residences can be quite satisfactory and of great assistance in providing sheltered care facilities for the Nation when they are properly licensed, inspected, and maintained.

Nursing home operators, it was noted, have made substantial contributions to the widely ignored problem of care for the aged infirm population. They should now concentrate on developing standards; on cooperating in research on physical design and structure; and on promoting effective criteria for licensing, inspection, and control. They should concentrate on working out spheres of activity and functioning with hospitals and prepayment plans. They were urged to get positive public recognition of their role in medical care.

Financing

One of the most significant and acute problems facing older people is that of adequate financing of medical care. Maintenance of older people in general hospitals for long periods of chronic illness which does not require hospital care constitutes a great and questionable economic burden. It is not, however, sensible or justifiable to exclude from general hospitals older people requiring hospital care, unless other acceptable high standard facilities are available.

Some hospitals, notably Montefiore Hospital in New York and Michael Reese in Chicago, have successfully experimented with home care programs. Here chronically ill persons, young as well as old, are supervised in their own or in convalescent homes or in boarding houses. Such a program involves the extension of the medical, nursing, and staff services from the hospital and requires greater reliance upon such community facilities as visiting nurse care and recreational and educational resources. It has the great advantage, of course, of enabling the patient to stay in his own environment and of lessening his adjustment problems while it frees hospital beds for acute cases. For the hospital, there is a much lower cost for patient care. For the economy generally, home care is to be preferred. Good family housing can be provided for as low as $3,000 per person, but hospital beds may each cost about $20,000 a year to maintain. The average cost of home care per patient is between a third and a fifth of the cost of his hospitalization. Even where hospitalization is undertaken initially, every effort at rehabilitation and early homecoming should be made.

Such home care arrangements cannot, however, be extensively established or promoted unless the general hospital is willing to accept its role as an operational base and unless the community and family are willing and able to assume appropriate responsibility. In the individual home, such responsibility at minimum requires healthful quarters. Certainly, it would not be suitable to refer patients home for care to any of the 16 million dwellings in the United States that have one or more health defects, as, no bathtub or shower or no inside running water. This program underscores the significant relationship between hospital or sheltered care and family housing. The one cannot depend on the other to prevent illness or to restore health unless housing conditions generally are vastly improved. Consequently, additional ways to reduce the general cost of care must be sought.

Community Attitude

A physician who is now successfully conducting a joint hospital-community service on behalf of the aged declared that housing needs of older people requiring sheltered care and medical supervision can best be met when it is realized that:

1. Well oldsters can generally care for themselves in individual or congregate households and perform normally when given understanding and sympathetic assistance;

2. Failure to provide in advance for the problem of growing old results in economic, physical, social, and emotional tragedy among the elderly.

Above all, he added, in prescribing for an older person, as for any other, regard the individual as a whole and consider not only physical care but social and emotional rehabilitation. The money cost of preventive service for the older population will in the long run be far less than the cost of neglect, he concluded.

Prepayment Plans

It was proposed that medical prepayment plans be adjusted to include aged persons. These people face the same problems as the rest of the population in paying for medical care, but their problems are much more acute than that of the average person. Their incomes are low. They need more than the average amount of medical service, over longer periods. As a consequence, they have generally been considered poor risks and have less opportunity for enrolling in voluntary prepayment or insurance programs. Most group plans will continue the insurance rights of persons over 65, but most will not accept them on an individual basis after retirement or after age 65 or 70. At the heart of this problem is the fact that prepayment plans are relatively new so that older persons have had no chance to enroll and many who did have found it difficult to keep up the payments.

For the one-fifth of all men and women over 65 now receiving old-age assistance from the Federal and State governments, there has been some amelioration of the problem, conferees noted. Public responsibility for care has been enhanced by the 1950 amendments to the Social Security Act permitting Federal matching of payments for direct payment to institutions and others who provide certain types of medical services. Excluded are institutions for medical and tuberculous patients—an omission which should encourage the financing of these institutions through health channels rather than through public assistance channels, it was suggested.

Important contributions to solution of the problem, the conference noted, can be looked for from the development of pooled-fund arrangements, increased cooperation between health and welfare departments, and from the medical and hospital professions working together with governmental agencies.

The development of adequate facilities is another step which, it was felt, might be taken immediately to provide medical care for older people. An example in the hospital field was cited. Under the impetus of the Hospital Survey and Construction (Hill-Burton) Program operated by the Public Health Service, volunteer groups, local and State governments, and communities have united in the planning and building of general hospitals. Attention might be given to the requirements of older people by studying the applicable features of the Hill-Burton program and related programs.

Finally, conference discussions emphasized one must not lose sight of—but rather point up—preventive measures. Efforts should be redoubled to keep the elderly who are well out of institutions and thereby save institutional resources for the truly sick and disabled. The individual patient, the family, the community, and all who are concerned with the growing problem of the aged must unite to keep as many of our older people as vigorous and productive as possible.

For the aged and others who must receive medical care it is important to place the right patient in the right bed at the right time. It was reiterated that the expansion of adequate family housing could probably do more to keep the older group out of institutions, particularly boarding and convalescent homes. Failure to utilize appropriate resources represents a waste of money and a public burden.

—IRVING LADIMER

Tuberculosis Control in Connecticut

These nine briefs, taken from discussions on June 18, 1952, at the tuberculosis session of the eighteenth New England Health Institute, Storrs, Conn., give an interrelated picture of a State tuberculosis program.

The Organization

PHR brief

The Connecticut State Tuberculosis Commission in Hartford is the official State organization for tuberculosis control. It was first organized in 1909 for the purpose of providing and managing State tuberculosis sanatoriums. Its present case-finding program of mass radiography, consultation services, education, and rehabilitation was set up in 1939. The five commission members serve without salary for 6 years. The director acts as administrative agent and coordinator. The commission meets for an all-day session approximately once every 10 days.

The tuberculosis commission is in an unusual position to develop a coordinated program with continuity in policy. In Connecticut's 169 distinct communities, tuberculosis control activities are conducted with the cooperation of each local health officer, who is kept fully informed of all State level activities in his community. Almost any community can be reached from Hartford in a matter of 3 hours or less. Connecticut, an essentially industrial State with a population of 2 million, is divided into four sanatorium districts with a State sanatorium for adults in each area.

The 1951 provisional death rate in Connecticut for tuberculosis was 14.1, or less than half of the 1940 rate. It has been estimated, however, that there are now approximately 9,000 unknown cases of tuberculosis in Connecticut, of which about one-third are active cases.

By Paul S. Phelps, M.D., director, Connecticut State Tuberculosis Commission.

Interrelationship

New cases of tuberculosis are reportable, as are deaths, to the Connecticut State Department of Health. They are referred to the commission for incorporation into the State case register, which is supervised by a research statistician. The commission has cooperative working relationships with the rehabilitation division of the State board of education, the Commission on Chronic Alcoholism, and the Connecticut Tuberculosis Association and its affiliated organizations, as well as many other agencies. Several local health departments have their own well-organized control programs with which the State cooperates to the fullest extent. An excellent State laboratory for sputum and body fluid examinations is maintained by the State health department.

Of the 128 visiting nurse associations in Connecticut, 104 are independent organizations. The commission has assigned one of its four public health nursing consultants to each sanatorium district. They use the State case register and work with clinic and survey physicians, sanatorium staffs and patients, and local public health nurses. The coordinator of nursing education in the State Tuberculosis Commission has set up a program of student nurse affiliation with the teaching hospitals of the State.

Sanatorium Capacity

Connecticut has a potential total sanatorium capacity of 1,715 beds (1,570 beds in State sanatoriums), a ratio of 5.9 beds per death. There are about 175—all men—on the waiting list for sanatorium admission. The ratio of men to women applicants is about 2 to 1. Some of the sanatorium beds are now closed because of lack of personnel and because of insufficient housing for personnel or because renovations are needed. It is expected that most of these conditions will be eliminated in the near future. Funds have already been provided for additional housing, and renovations are already under way. A recent reclassification of State employees may well provide for the lack of personnel, particularly among nurses.

There is still a means test in Connecticut with a minimum charge required by law of $4 a week although patients are expected to pay as much of the $70 weekly cost of care as they can afford. Strenuous efforts are being made to eliminate the means test. The town or State must assume financial responsibility for those patients without funds.

In 1951, approximately 201,779 apparently well adults were X-rayed throughout the State; 1,300 patients were admitted to State sanatoriums; 15,246 nursing visits were made by local public health nurses; and 23,814 visits were made to the various consultation services.

The Mass X-ray Survey

PHR brief

The primary purpose of mass radiography is to discover new cases of pulmonary tuberculosis. Its side products are important, too. Most valuable among these is the discovery of nontuberculous chest disease such as abscess and bronchiectasis, chest tumors, and heart disease associated with changes in the size or shape of the heart shadow.

By Alan L. Hart, M.D., M.P.H., senior tuberculosis control physician, Connecticut State Tuberculosis Commission.

Beginning in 1944, the State Tuberculosis Commission has conducted mass X-ray surveys systematically and on a voluntary basis in communities, in industries, and in institutions. Approximately 80,000 people are X-rayed each year.

Survey Procedure

When a survey is planned, a site is selected for the X-ray unit, and the electrical current there is checked. Two technicians operate a unit at the rate of 50 people an hour throughout a working day. All screening examinations consist of 4″ x 5″ stereoscopic films.

Seventy-millimeter films were abandoned some years ago in Connecticut. We found, on reviewing 25,000 survey films selected at random, that the percentage of significant chest lesions missed on 70-mm. films was four times the percentage missed on stereoscopic 4″ x 5″ films.

Film Reports

Films are brought from a mobile survey unit to a central darkroom for careful and uniform processing to give films of good quality and density. All survey films are read by physicians with extensive experience and training in interpreting chest films and in the clinical diagnosis and treatment of tuberculosis. Every film with any significant deviation from normal is set aside for more careful study. During this study, the master files and the State register of known tuberculosis cases are searched for information about anyone whose film suggests possible chest disease. Whenever such information is found, it is incorporated in the report of the current survey film. If previous films are found, interpretations of these are also included in an effort to make the report more useful.

The physician named at time of survey by the person X-rayed receives a report on every positive film. The report indicates possible heart disease and nontuberculous chest disease as well as suspected pulmonary tuberculosis. The report form includes a chest diagram on

which the locations of lesions can be marked. Space for noting further study suggestions is also provided.

Survey Findings

In 1944, the percentage of tuberculosis picked up was approximately 1.5, rising to 1.67 by 1946. It is now about 0.5. At first, the increasing volume of survey work was sufficient to offset the percentage decline, and the number of cases discovered each year continued to rise until 1950, but there has since been a fall in the total number of cases discovered.

From carefully controlled studies of surveys in selected industries and selected stable communities, we know that the percentage of new cases falls off very rapidly when surveys are repeated. From this, we conclude that 4 to 5 years should elapse between surveys in the same place, unless the turnover of employees or increase in population has been great. It now seems unnecessary for purposes of tuberculosis control to make annual surveys in the same population groups.

Another observation is that our surveys pick up most tuberculosis in middle-aged and elderly adults—in the forties and fifties among women, and in the fifties and sixties among men.

Approximately 72 percent of the cases of pulmonary tuberculosis picked up in mass surveys are minimal; less than 20 percent are moderately advanced; and less than 5 percent are far advanced. In a minimal case, the patient seldom has any symptoms of which he is aware, and he is naturally reluctant to believe his condition warrants medical treatment or hospitalization. Also, many physicians are reluctant to believe that people can have pulmonary tuberculosis when they show no clinical symptoms and there is nothing to direct attention to their lungs except a shadow on a chest film. The tendency is to reassure the patient that the lesions are old and inactive, but the tragedy comes later when the same patient is found to have moderately or far advanced disease.

The precise value of mass radiography in tuberculosis control will be determined by future events. With good follow-up and clinical evaluation, it can help to build a more effective control program.

Consultation Services

PHR brief

The field consultation services of the State Tuberculosis Commission were established to augment the existing clinical facilities available at the out-patient departments of the sanatoriums and at locally operated city clinics.

Presently, there are in Connecticut 13 field consultation services, 5 sanatorium out-patient departments operating directly under the tuberculosis commission, and 5 city clinics and 1 sanatorium out-patient department cooperating with it.

Plans and details of operation are discussed in advance with the local health authorities and physicians. Space for a waiting room, nurses' room, dressing room, X-ray room, and examining room is made available in the local health department, in the hospital, visiting nurses' quarters, or elsewhere. Equipment is furnished by the State, and the permanent equipment is installed and tested prior to the first session at the field clinic. All film processing is done at the central office of the commission in Hartford.

Consultation Schedule

After estimating the number of clinical sessions per month, the tuberculosis commission notifies every physician and nursing agency in the area. A schedule of proposed clinic sessions showing date, time, and place, and a supply of "request for examination" forms are enclosed with each letter. No charges are made for services, which are limited to the diagnosis and follow-up of the known case of tuberculosis, the suspect of chest pathology, and the contact. Patients are accepted by physician referral only and are seen on an appointment basis. Examination results are reported to the family physician, and the patient is instructed to consult with him.

As "request for examination" forms are re-

By R. C. Edson, M.D., chief, tuberculosis control, Connecticut State Tuberculosis Commission.

ceived in Hartford, existing available records are pulled, and the State tuberculosis control physician makes up his clinic. To utilize his time most efficiently and serve as many patients as practicable, efforts are made to predetermine which patients need a detailed examination by the physician.

Information from the request form or from existing records helps to identify the known case and the suspect. Interviews are scheduled at half-hour intervals. The contact and the possible source of infection are not normally seen by the physician and are scheduled at the rate of three interviews every 15 minutes.

Appointment notices are then mailed in duplicate—one to the patient, and one to the local nursing organization—2 weeks ahead of the clinic session. These methods permit control of the clinic load and review of records and keep the patient's waiting period at a minimum.

The Clinic Session

On the day of the clinic, the State team—tuberculosis control physician, clinic nurse, and X-ray technician—leave Hartford. Records, forms, X-ray films, and supplies are their responsibility. They are joined at the clinic by the local public health nurse. Records and equipment are brought in. The nurses may interview the first patients as the X-ray equipment is set up. Each patient is interviewed by a nurse, who enters identifying data on a 5″ x 8″ record card. If the patient is to be seen by the physician, a history and laboratory sheet is started, and the patient's temperature, pulse, respiration, and weight are recorded. The patient is X-rayed, then seen by the physician; and history, examination, and laboratory studies are made as indicated. The patient is instructed to contact his family physician within the next week.

When the physician does not see the patient, the nurse obtains sufficient information to ascertain whether the patient is a contact, and, if so, she records pertinent exposure factors. The patient is then X-rayed and may be tuberculin-tested; his record is briefly reviewed by the physician, and after instruction about seeing his physician the next week, he may return home.

Postclinic Procedures

At the end of the clinic session, a brief conference is held between the State and local clinic personnel. By quickly reviewing each record and noting omissions or corrections, an opportunity is given to discuss common problems and to iron out the minor wrinkles in procedures. The team then returns to Hartford.

After processing the films and collecting the required records, a detailed report is sent to the referring physician. If tuberculosis has been found or is suspected, a summary of the findings is sent to the local health officer and the public health nurse in the community where the individual lives. Where follow-up is indicated, a procedure is followed similar to that of the initial visit, a return date is specified, and the 5″ x 8″ record card is placed in a tickler file. Individuals are classified as known cases, suspects, possible sources, contacts, or clinical survey cases, and are listed on a day sheet under their classification. Sufficient statistical data is recorded and summarized on a monthly and yearly basis to evaluate achievements. Copies of similar records are supplied by the local city clinics and the sanatorium out-patient departments so that an over-all evaluation of clinical facilities is available in Connecticut.

In the fiscal year, July 1, 1950, to June 30, 1951, 23,110 visits were made by 15,650 patients; 436 new cases of tuberculosis were diagnosed, of which 180 were considered active; and there were 366 active cases among the known 2,986 cases being followed.

The Diagnostic Laboratory

PHR brief

In time consumed and in cost of materials, an adequate test for tuberculosis ranks as one of the most expensive examinations in a public health laboratory. The cost is small compared to the value of the findings to the person with

By Friend Lee Mickle, Sc.D., director, bureau of laboratories, Connecticut State Department of Health.

symptoms of tuberculosis, to his family, and to the physician who must decide whether he should remain at home or receive sanatorium care. The cost to the State is small when we consider that otherwise undiagnosed cases are found by laboratory tests, thereby removing the infectious person from general contact with persons who might become infected, and thus preventing an unknown number of possible new cases as well as the further damage that could result to the person himself.

40 Years of Tests

The examination of sputum for tuberculosis was one of the three or four tests for detecting communicable diseases which were undertaken when the bureau of laboratories was first established in 1905 on the campus of Wesleyan University in Middletown. At that time, the only test made was a stained smear on untreated sputum which was examined microscopically. Laboratory techniques were improved over the next 40 years, and today's findings are infinitely more reliable. Inoculations of animals with materials suspected of containing tubercle bacilli were started in 1925, but these tests were few. Routine culturing of sputum for tubercle bacilli was begun in 1941.

Laboratory examinations for tuberculosis rose undramatically from small beginnings in 1905 to almost 2,500 in 1942, but reached a surprising high of 14,000 in 1951. Of all laboratory examinations made for the diagnosis of all communicable diseases, those for tuberculosis rose from 3.6 percent in 1942 to 12.7 percent in 1951. By 1951, the number of tuberculosis examinations had increased 500 percent over those given in 1942, even though the number of all yearly examinations now given in the bureau still approximates the 1942 figure.

Laboratory Tests

Currently, laboratory tests on materials from tuberculosis suspects comprise:

1. Microscopic examinations of sputum which has been treated to concentrate the causative agent in the portion to be examined.
2. Cultures of sputum and other body fluids to grow the living bacillus *Mycobacterium tuberculosis*.
3. Animal inoculation tests on body fluids, and on sputum on request, and occasional animal inoculations to test the virulence of nontypical cultures.

The specimens are concentrated with sodium hydroxide 4-percent aqueous solution, shaken in a Babcock shaker, and centrifuged in an angle centrifuge. The smears are stained with Ziehl-Neelsen acid-fast stain and are examined and reported promptly after arrival at the laboratory. The concentrates are cultured at the time of making the smears. Most positive cultures appear after approximately 3 weeks and are reported as soon as they are identified. Microscopic confirmation is made for each culture. Those showing no growth of tubercle bacilli are held for 3 months before they are reported.

Animal inoculations are made on the specimens as received, and the animals are sacrificed after 8 weeks. A few isolated specimens are treated before inoculation. Practicing physicians, physicians in hospitals, at tuberculosis clinics, at mental institutions, and in laboratories throughout the State send specimens. Occasionally, animal inoculation tests for virulence are requested by laboratories on cultures which they have isolated.

The following table shows how the examinations for tuberculosis were divided in 1951. About 5 percent more positives were found on culturing than by microscopic examination of the sputum concentrates.

	Total	*Number positive*	*Percent positive*
Microscopic examination for sputum concentrates	5,028	460	9.1
Cultures on sputum concentrates	4,939	692	14.0
Direct animal inoculations	1,518	144	9.5
Cultures on specimens for direct animal inoculations	1,528	150	9.8
Pathogenicity tests	235	198	84.3

The culturing of specimens establishes the identity of any acid-fast organisms. There are instances where acid-fast organisms are observed in stained smears of the original specimen but after growth on culture media, the colonial characteristics show they are not tubercle bacilli. It is a serious error when these other acid-fast organisms are reported to the physician in such a way that he is led to accept them as tubercle bacilli. There may always be doubt in the physician's mind even though follow-up X-rays do not show evidence of tuberculosis. Occasionally in our experience cultures have grown which closely resemble cultures of

tubercle bacilli but which are not typical. Sometimes the difference is slight. Animal inoculations are always done on these organisms to establish without question the virulence or nonvirulence of the culture isolated.

Tuberculosis Control

The eradication of tuberculosis can be accomplished only with a community program which coordinates modern case-finding methods, public education, improved nutrition and housing measures, chest X-rays, laboratory tests, better surgery and treatment methods, and rehabilitation programs. It will take many more years of continuous effort to reduce the incidence of tuberculosis, and it is evident that the continued availability of laboratory services as in Connecticut is essential to provide the foundation for future as well as present control programs.

Poor laboratory facilities must be improved, and good laboratory services must be extended.

The Case Register

PHR brief

A tuberculosis case register is a current system of records for keeping a summary of pertinent medical and public health data for every known tuberculosis patient within a given area. It summarizes and records information supplied by physicians, nurses, clinics, hospitals, sanatoriums, laboratories, or other tuberculosis control agencies.

Usually, physicians, hospitals, and clinics include in their records only patients under current treatment, and the patient's follow-up is his own responsibility.

It is the currency, accuracy, and completeness of the data recorded which distinguishes a case register from other record systems. Both State and local registers function as:

By R. MacNish, M.P.H., research statistician, Connecticut State Tuberculosis Commission.

An index of all known tuberculosis patients within the register area.

A source of information for:

Reference, follow-up, and supervision of individual patients and their contacts.

Planning and evaluating a control program.

Research.

State and Local Registers

The State register provides a clearinghouse of information and the nucleus of a working register to be reproduced in any local area upon request. It serves as a guide in the consultation of State and local personnel and as an administrative tool for program planning, supervision, and evaluation. The local registers are tools for individual case management. There is a continual exchange of information between the State and local registers.

In the central office of the State Tuberculosis Commission is the State register with a card for every known tuberculosis patient in Connecticut. Local health officers supervise local registers containing the same type of information as well as more detail about patients and contacts under local supervision.

All registers use a visible filing system with folded 5″ x 8″ cards showing on two visible margins the register number, name, town and district of residence, birth date, sex, color, and marital status. The body of the card contains additional personal history, information from initial report, hospitalization for tuberculosis, progress notes, a place for names and examinations of contacts, and death data. Cards are filed alphabetically in the State register for each town in the four sanatorium districts of Connecticut. Colored celluloid tips and sliding signals facilitate quick summaries.

Active and Inactive Records

A register combines a current visible file for all administratively active cases and a closed file for all administratively inactive cases. The current file contains cards for all diagnosed cases of tuberculosis: active; activity undetermined; or inactive if examined once a year or less. It also includes all applications for admission to a State sanatorium. The closed file includes cases with inactive pulmonary disease if examinations are less frequent than once a year; deaths, diagnoses changed to nontuber-

culosis; cases moved out of State or unable to be located; and all cases with no status report for over 5 years. There are also an alphabetical, visible master index file with a small identifying card for each register case giving its file location and a punch card system for machine tabulation of data. Interchange of information forms patterned after the register card are used for forwarding reports from register to register.

A satisfactory register is possible only through the cooperative efforts of all concerned with the problems of tuberculosis control.

The Nurse Consultant

PHR brief

In 85 of 169 Connecticut towns, the public health nursing organizations provide public health nursing service. There are only five boards of health with full-time health officers who employ public health nurses for the tuberculosis nursing service. In 43 towns without a local public health nurse, the State Tuberculosis Commission provides direct tuberculosis nursing service on request until local service can be established. Because of the different organizations offering tuberculosis nursing service, we have carefully planned an information referral system to provide continuous and integrated service to the tuberculosis patients.

Each one of the four public health nursing consultants of the commission is assigned to a sanatorium district for liaison between public health nurses, the sanatorium, the consultation service, and the State Tuberculosis Commission.

A Dual Role

The duties of a nurse consultant in Connecticut's tuberculosis control program are somewhat unusual. To the local public health nurses, she interprets the control program.

By Helen M. Green, R.N., senior tuberculosis control nursing consultant, Connecticut State Tuberculosis Commission.

She also participates in the student nurse program, in the follow-up of cases found through mass X-ray surveys, and in monthly conferences of State-employed public health nurses. It is her dual role with the sanatorium and the local community which makes her a valuable link in the control program. This can best be illustrated by a brief story of her work with a new supervisor in a local two-nurse agency and a typical tuberculosis patient, Mr. X.

The nurse consultant discusses plans for acquainting the new supervisor with the services and facilities in the State. During the period when the new nurse is gaining familiarity with her area and the health program, the consultant reviews statistical data on tuberculosis for the local community over the preceding 3 years (mortality, newly reported cases, and sanatorium admissions), and field reports, correspondence, and the State case register.

On her first visit to the new supervisor, she explains the functions of the tuberculosis commission and the types of referrals which will be sent to the local nurse, and she describes the consultation service. She suggests sample information literature which the Connecticut Tuberculosis Association makes available. Before her next visit, she reviews the case register in more detail to obtain information on patients recommended for sanatorium care, on patients awaiting admission, on ones who have refused sanatorium care, and on those who left the sanatorium against advice. On the second visit, both nurses will discuss specific cases and determine the nursing needs of each patient. The consultant arranges for the local nurse to observe a field consultation service which she also attends to explain the individual cases.

The Case of Mr. X

A week later, the local supervisor receives a report on a Mr. X who was examined at the consultation service. She calls his physician, who explains that he has received positive sputum reports on Mr. X and that sanatorium care is advised. The physician has talked to Mr. X and has completed the sanatorium application, but he requests the nurse to give the patient's family instructions about preventing further exposure. He has arranged for examination of the household contacts at the con-

sultation service. Knowing the importance of visiting as soon as possible after a diagnosis, the nurse calls at the home of Mr. X that same day.

During her visit, the nurse discusses the problems that are foremost to Mr. X and his family: how long he may be sick; are the children infected; where are the tuberculosis hospitals located; how is tuberculosis treated? She teaches Mr. X how to guard against spreading his infection. She explains the services offered by the community's medical and social agencies.

The nurse regularly visits Mr. X and his family to continue her teaching and to initiate a regime comparable to sanatorium routine. Any problems or questions she cannot answer, she communicates to the public health nursing consultant in the tuberculosis commission. Meanwhile, she completes a supplement to the sanatorium application for admission, mailing it to the commission, which will send a copy to the sanatorium with a copy of the application when the patient is assigned a vacancy.

When the patient's name nears the top of the waiting list, the consultant communicates with the local public health nurse to assure that Mr. X is planning to accept the sanatorium vacancy. The vacancy assignment is sent to the local nurse, who ascertains from Mr. X that all necessary preparations have been completed for his hospitalization. She also explains the procedure for cleaning his room after his departure from home. During his hospitalization, the local nurse visits his family and talks with the school nurse about his children and with the industrial nurse at the plant where he works.

At the Sanatorium

After Mr. X has been admitted, the nurse consultant attends the sanatorium staff conference when his case is presented, his films are reviewed, and plans for his treatment are discussed. She learns he is anxious about the health of his youngest child and notifies the local nurse, who visits his family and arranges for the child's examination. When Mr. X is scheduled for rehabilitation conference, the consultant inquires about his future plans. After the conference, she reports the rehabilitation plans for him to the local nurse. When she next sees him—about 2 months before his discharge—she discusses plans for his medical supervision after he leaves and emphasizes to him the importance of following the physician's recommendations upon discharge.

The local nurse is notified of the pending discharge with a request for the status of present home conditions. She helps prepare for Mr. X's homecoming by explaining his limitations and by pointing out the value of keeping him on a regular routine. The information about his present home conditions is presented at the sanatorium staff conference, if indicated, and is then attached to Mr. X's record for use at the final discharge interview. The local nurse visits Mr. X after discharge to assist in his readjustment to living outside the hospital community. Many patients need greater help here than was needed upon admission to the sanatorium.

Through this plan of referral, we have eliminated many of the gaps between the sanatorium and the home, and better continuity of patient care is provided with the two-way traffic of information until complete rehabilitation has been achieved.

Student Affiliation Plan

PHR brief

Few States can match Connecticut's record in tuberculosis nursing affiliation. Since the start of the affiliation program in 1948, nearly 700 students have trained in the care of tuberculosis patients at State sanatoriums. Connecticut is among the first States in which the official agency responsible for tuberculosis control has acted to promote tuberculosis education for nursing students.

Before tuberculosis experience could be possible for student nurses, the requirements of the State board of examiners for nursing had to be

By Louise Lincoln Cady, R.N., nursing education coordinator, Connecticut State Tuberculosis Commission.

met as to instruction and nursing practice. Teaching materials had to be prepared. Communicable disease precautions had to be established at the sanatoriums accepting students, and nursing procedures had to be revised. Qualified instructors had to be secured. Standards of sanatorium patient care had to be set so that students could learn good nursing by observing it.

Student Practice

At first, only a few sanatorium wards could be opened to student practice. Today, experience in nursing practice has been extended to include the complete range of sanatorium facilities. At present, nursing students from 15 of the 21 nursing schools in Connecticut are affiliating with 2 State sanatoriums. At least 15 former students have returned to the sanatoriums as graduate nurses.

Through classes with the director of the tuberculosis commission, the physician in charge of surveys, the public health nursing consultant, and a representative of the Connecticut Tuberculosis Association, the student learns the fundamentals of epidemiology and tuberculosis control—an understanding which is furthered by observation at the State's consultation clinics and community surveys.

The greatest factor in overcoming possible fear of tuberculosis on the part of the student is a good student health program at the sanatorium. A new student is given a tuberculin test and a chest X-ray, followed by periodic check-ups during her affiliation and for 2 years after. To date, 92 nurses have completed the 2-year follow-up.

Since every member of the sanatorium nursing team participates in teaching and supervising nursing students, there must be a continuous education program for the professional and nonprofessional nursing staff. The duties of each member should be carefully defined, and an orientation program should be prepared for each type of worker. Staff education programs vary. One part of the affiliation program has been to give nurses special experience in conditions which may complicate tuberculosis.

Students add to their knowledge of tuberculosis by attendance at medical and surgical conferences. These in combination with observation opportunities at rehabilitation conferences increase their understanding of the needs of the patient as a person and his family problems.

Patient Education

In the two sanatoriums with student affiliations, the students are given an opportunity to supplement the instruction given to patients by registered nurses. A program of patient education includes individual instruction at regular intervals, group instruction conducted on the wards, classes for women patients in homemaking and diet, and classes for patients whose discharge is pending.

One result of the student program has been to increase the desire of nurses in general hospitals to know more about the care of the tuberculosis patient. Greater interest in X-rays of general hospital admissions and in good health programs for the nursing staff has been another outcome.

The Connecticut Tuberculosis Association has contributed financial assistance for speakers addressing students and for observation opportunities afforded staff nurses. The unlimited cooperation of the tuberculosis commission, the sanatorium directors, and the schools of nursing has been highly effective in providing many students with the opportunity of tuberculosis affiliation.

The Health Educator

PHR brief

The health educator in the State Tuberculosis Commission acts as field representative in the organization of mass X-ray surveys in communities and industries. To be effective, he must know the mechanics of the complete program; he will plan programs with the physician in charge of surveys; he will coordinate activities of other staff members participating in survey organiza-

By William B. Parsons, M.S., assistant in health education, Connecticut State Tuberculosis Commission.

tion; and he will use the X-ray service as a springboard for health education.

A plan of procedure has been published outlining the operation of the mass survey, describing the committees required, and giving recommendations for avoiding pitfalls. The plan centers on an efficient appointment system which has been developed for smooth, continuous operation of the X-ray units.

Survey Committees

In making full use of his opportunity for health education, the educator acts as adviser to a local nucleus committee of well-informed, responsible citizens who are sincerely interested in the health of their community. The committee is usually composed of the over-all chairman of the survey and chairmen of canvassing, of appointments, of volunteers, of publicity, and of industrial arrangements. In addition, it includes the health officer, a representative of the public health nursing group, a practicing physician in the area, and a member of the town government. The health educator meets with the subcommittees on canvassing, appointments, and volunteers.

Several months before a survey, arrangements are made for talks before civic and fraternal organizations. Letters describing the purpose of the survey are sent to private physicians, ministers, clubs, and community groups. The publicity chairman and the health educator plan newspaper and radio announcements explaining the reasons for participating in the survey and the method of making reports. They arrange for posters, exhibits, and the distribution of leaflets descriptive of the survey procedures and results.

The Basic Facts

Because the canvassers are the ones who persuade their fellow citizens to participate in the survey, they must have the basic facts about tuberculosis. Each canvasser receives fact sheets and information booklets prepared by the health educator in preparation for "selling" the survey to the adult citizens of the town and for signing up individuals for appointment at the X-ray units.

The mechanics of the industrial phase of the mass X-ray survey program are simpler than in community surveys, but the problem of education is more difficult. No individual appointments are made by employees, and, therefore, by consent of the management, question-and-answer meetings are held with the plant foremen and department heads. The plant nurse is a key person in the industrial phase. If the foreman feels he cannot answer a specific question, he can refer to her. Posters, leaflets, and announcements are placed in strategic plant locations. Unions assist in educating their members and in encouraging participation.

In promoting X-rays, we stress:

The X-ray is the best single means of discovering chest disease in the early stages.

Chest X-ray is a good way to protect oneself, one's family, friends, and fellow-workers.

Of all persons X-rayed, 97 to 98 percent will have essentially normal chests. Their negative survey reports reassure them and serve as a permanent record of their condition at that time.

It takes only a minute to be X-rayed at the mobile unit—No one has to undress for examination—Everyone gets a confidential report on his chest film.

If X-ray findings are suspicious, see a doctor.

Recent Developments In Sanatorium Treatment

PHR brief

Medical and surgical treatments in the sanatorium have undergone revolutionary changes during the past decade, with even more dramatic changes in the past 5 years.

PAS and Streptomycin

Streptomycin, which was the first drug to show any notable antituberculous activity in the human, presented the two major obstacles of toxicity and development of resistance by the tubercle bacillus. Eventually, these barriers were markedly reduced and a satisfactory modality of administration was found. Para-

By Nicholas A. Marinaro, M.D., assistant superintendent and medical director, Cedarcrest Sanatorium, Newington, Conn.

aminosalicylic acid (PAS) was the next antituberculous drug to be discovered. Although possessing rather low levels of toxicity and resistance formation, its antituberculous activity was far less than that of streptomycin.

At the present time, these two drugs are administered in a combined intermittent regimen wherein 1 gram of streptomycin is given in one intramuscular dose every third day, and 12 grams of PAS are given by mouth daily in three divided doses. This method produces the maximal therapeutic effect with minimal toxicity and drug resistance. The exceptions are when streptomycin is administered intrathecally in meningitis and is given in 1- to 2-gram daily doses in tuberculous meningitis and generalized miliary tuberculosis.

None of these drugs are alone capable of producing a cure, particularly in tuberculosis of the lung. Usually some other form of therapy must be added to achieve complete control of the disease. Other drugs have been tested and found to be deficient in the treatment of human tuberculosis.

New Developments

The most recently discovered antituberculous drugs are the hydrazines of isonicotinic acid. They possess these valuable characteristics for treating tuberculosis, among others:

Easy and cheap to manufacture.
Easy to take by mouth.
Rapidly absorbed in the gastrointestinal tract.
Low toxicity.
Quick dispersion throughout the body.
Readily excreted through the kidneys.

However, we lack so much information concerning their effect on tuberculosis and about proper dosage, drug resistance, and other therapeutic measures that it is impossible to make any statement of their full value.

The surgical treatment of tuberculosis has paralleled medical advances. Many factors—better thoracic surgeons, better anesthesiology, available whole blood, antituberculous drugs, and better understanding of basic pathology and physiology in pulmonary tuberculosis—have assisted thoracic surgery in its developments.

Specifically, pneumonectomy, lobectomy, wedge and segmental resections, and pleuropneumonectomy are the recent surgical improvements which have occurred in the removal of tuberculous lung tissue.

The above-mentioned medical and surgical treatments are rarely used alone, but rather in combination. Former methods of treatment have not been discarded but have been reevaluated in the light of recent advances. Pneumothorax, pneumoperitoneum, and thoracoplasty are still useful procedures when properly applied. Mental and physical relaxation and rest still are the foundation stones of treatment. Sanatorium treatment is more necessary than ever because a broad therapeutic program is based on the judicious use of all forms of therapy.

WHO Fellowships for U. S. Citizens Not Available

The 5th General Assembly of the World Health Organization adopted a resolution instructing the Director General to give preference in awarding fellowships for at least the next 3 years to candidates from underdeveloped countries. Funds, therefore, are no longer available to support fellowships for United States citizens.

Radioactive Waste Disposal

By CLINTON C. POWELL, M.D., and HOWARD L. ANDREWS, Ph.D.

WITH the increased use of reactor-produced isotopes in research, many organizations are today faced with the problem of the disposal of radioactive waste materials. Many of the materials are either too active to put into municipal sewer lines or are in forms not suitable for liquid disposal. Large isotope-production centers, such as Oak Ridge and Hanford, have special facilities for handling waste products, but the average urban laboratory is not so equipped. Space for storage until decay has proceeded to safe levels may be at a premium, and land burial is often difficult and of uncertain permanence.

Although land burial may be satisfactory in special cases, it is generally undesirable for several reasons. Obviously, extreme care must be taken to avoid seepage and the subsequent contamination of surface or ground water. The selection of a suitable burial site presents problems: An area which today appears unattractive for construction and habitation may very soon become desirable for a building program. After weighing these considerations and being forced to remove one land burial depot, the National Institutes of Health decided upon burial at sea as the most satisfactory method of ultimate disposal for all radioactive wastes which cannot be safely admitted to the municipal sewage system.

Dr. Powell, now with the National Cancer Institute, National Institutes of Health, Public Health Service, was formerly radiation safety officer for the National Institutes of Health, Bethesda, Md. Dr. Andrews is chief of the section on nuclear radiation biology, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health. All members of the radiation health protection group at the National Institutes of Health have contributed to the development of the system for disposal of radioactive waste materials described in this report.

Concrete Burial Vaults

The present system for disposal of radioactive wastes is the result of over 2½ years of experimentation with various containers and methods of sealing. Two types of containers determined unsuitable were steel drums and garbage cans. These roll if placed on their sides, are inconvenient to handle, and will disintegrate rapidly in sea water.

Standard, commercially available, concrete burial vaults were found to be satisfactory basic containers. Child-size vaults, 19¾ by 18¾ by 44 inches (outside dimensions), hold about 5.3 cubic feet of material and cost about $25 each. The cost is negligible compared to the total cost of the average experiment using radioactive isotopes. Vaults are also available in larger sizes, up to 36 by 28 by 93 inches, for the disposal of large items of equipment not readily broken down, but the small size is more generally useful and more easily handled.

The burial vaults may be lifted by steel cables attached to the four lifting eyes cast in the bottom. Pending disposal, they occupy a minimum of space and may be stacked if allowable floor loading permits.

As waste products are brought in from the various laboratories, monitors pack them in the vault as compactly as possible. Containers of liquid wastes may be put in, usually without concentration of the materials. An alternate

method involves mixing the liquid wastes with a prepared sand-cement mix; this is allowed to harden and then placed near the center of the vault. Dilute solutions may be concentrated by chemical reactions, evaporation, or ion exchange columns before disposal. Contaminated furniture, such as hoods, is taken apart for more compact stowage. Relatively active materials are placed near the center of the vault to reduce the radiation level at the outside by both distance and shielding. At the present time no attempt is made to concentrate routinely either solid or liquid wastes, but this will be done in the future as suitable methods are developed.

The vaults are filled with waste materials to within 3 to 4 inches of the top, then filled flush with a concrete mix. The mix is made with somewhat more than the usual amount of water to facilitate a complete filling of all voids which would add to the buoyancy and increase the chance of crushing by external water pressure. The final pouring is made with the vault suspended by the steel cables so that subsequent lifting will not crack the concrete cap. The finished product, ready for disposal, weighs from 900 to 1,300 pounds and is readily handled with a small chain hoist. The sealed container is weighed carefully to insure that it has a substantial negative buoyancy.

Concrete burial vaults sealed as described should also be satisfactory where land burial rather than sea disposal is practiced. Contact between the active contents and surrounding earth and water will be minimized, and removal will be facilitated if a new burial site has to be used.

Disposal at Sea

When a load of from 10 to 20 tons has accumulated, the vaults are trucked to the United States Coast Guard moorings at Berkeley (Norfolk), Va. To date none of the shipments has presented any radiation hazard to the truck drivers or handlers, but all shipments are routinely accompanied by a monitor in case of accident. The vaults are loaded from the pier to the deck of a Coast Guard cutter, using the ship's cargo winch for hoisting. The load is put overside in not less than 1,000 fathoms of water, which in the Norfolk area means from 75 to 100 miles off shore. Bearings of each disposal point are taken by the navigator of the cutter, reported to the monitor accompanying the shipment, and later recorded.

Each discarded vault represents almost a monolith that will probably not disintegrate appreciably in 100 years. Since the seal between the cement cap and the body of the vault is probably not watertight, and no attempt is made to make it so, there will undoubtedly be a slow diffusion of material through this joint. Contamination by diffusion should be very small, however, and dilution by surrounding sea water very great. Radioactive decay during the period the structure is intact will reduce the activity of most commonly used isotopes to undetectable levels. Even 5.3-year Co^{60} will decay to nearly 1/1,000,000 of its original activity in 100 years. If the block eventually crumbles and exposes the contents, any undecayed products will be greatly diluted with large volumes of sea water.

Conclusions

It seems unlikely that this method of disposal, even if practiced by the majority of isotope users except the Atomic Energy Commission production plants, will have any detectable effect on commercial or sport fishing. The radioactivity associated with the potassium normally present in sea water amounts to about 1,000 curies per cubic mile, and the natural radium content of sea water will average perhaps 4 curies per cubic mile. It is most unlikely that these levels would be appreciably augmented by even a large-scale disposal program.

Disposition at depth appears to answer most of the objections to land burial and is much to be preferred to indiscriminate dumping into sewerage systems. A still greater factor of safety might be obtained by disposal in one of the stagnant areas where circulation with the bulk of the ocean water is relatively low, but these areas are less accessible than the one presently in use.

Radiological Health Field Training Unit

By SIMON KINSMAN, Ph.D., and MORTON I. GOLDMAN, M.S.

ALTHOUGH the radioactivity associated with radioisotopes and nuclear power is potentially of great benefit to mankind, it presents certain hazards which are becoming of increasing public health significance. These hazards are formidable but not insurmountable. Feasible methods of radiation protection are available for both the individual working in close contact with radiation and the public living in the environs exposed to radioactive wastes.

One of the most important aspects of radiological safety is the detection of radiation. Since radiation cannot be detected by our ordinary senses, we must depend upon special equipment to detect and measure it in order to preclude excessive exposure of individuals or the public.

State and local public health agencies will be, and, in fact, already have been, called upon to take an active part in radiological safety programs. Recognizing the nation-wide lack of public health workers trained in radiological safety procedures, the Public Health Service has instituted a series of short courses in radiological health at the Environmental Health Center in Cincinnati, Ohio. The mobile radiological health field training unit is an outgrowth of suggestions from the trainees of these courses and the realization of means to fulfill the numerous requests for field training.

The training unit was conceived in November 1950. Design and planning began the following month, and procurement of priority materials was in progress by March 1951. The majority of the interior construction, mounting of instruments, and installation of cabinets, sinks, and electronic radiac instruments was accomplished by members of the radiological health training section of the Environmental Health Center. The unit was completed in February 1952.

Radiation detection apparatus of each of the three functional types are contained in the unit: laboratory-type assay equipment, field-survey monitoring instruments, and personnel-monitoring devices. The assay equipment includes proportional, Geiger-Mueller, and scintillation counters plus associated scalers, count-rate meters, and recorders, all of which can be used for radiological assay of water, food, and air. These laboratory-type instruments are mounted in such a manner in the unit that they can be used in place or can be easily moved to a laboratory or lecture hall for training purposes.

The portable survey instruments include Geiger-Mueller counters, ionization chambers, and electroscopes. The personnel-monitoring devices include dosimeters and film badges, as well as a densitometer for reading exposed-film densities.

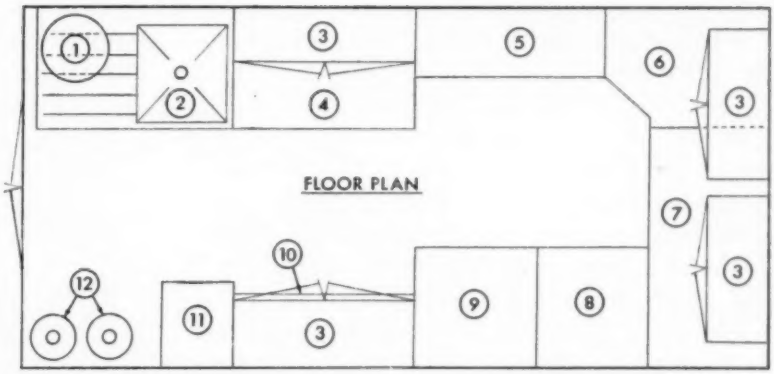
A chemical work table and exhaust hood are provided for the demonstration of safe radiochemical techniques and sample preparation using materials at low and intermediate radiation levels. Laboratory apparatus and glassware of the types used for tracer radiochemistry are included in this section of the unit.

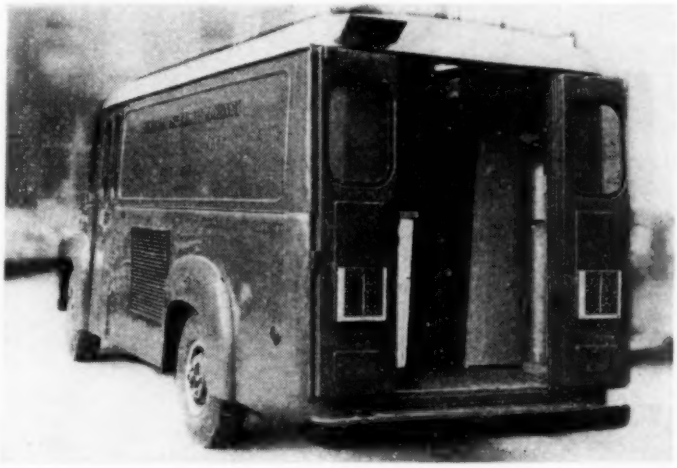
To maintain the electronic instruments at proper operating temperatures and to provide a constant temperature for developing and servicing film badges, the unit is air-conditioned. It contains its own pressure water system and

Dr. Kinsman is chief and Mr. Goldman is senior assistant sanitary engineer of the radiological health training section, Environmental Health Center, Public Health Service, Cincinnati, Ohio.

Floor plan of field unit:

① Exhaust hood, over stainless-steel drain board. ② Sink. ③ Wall cabinet. ④ Chemical work table. ⑤ Air-conditioning unit. ⑥ Repair work table. ⑦ Detector work table (motor-generator underneath). ⑧ Detector work table. ⑨ Scaler instrument rack. ⑩ Work table. ⑪ Clothing locker. ⑫ Gas cylinders.

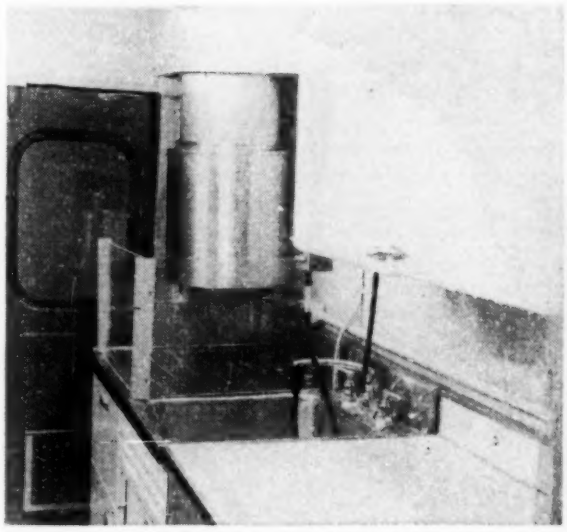




Left: **Exterior of field training unit. Note filters in doors, which help to keep dust to a minimum.**

Lower left: **Chemistry section of the unit. The exhaust hood and chemical work table are shown.**

Lower right: **Radiation - detection equipment. Proportional counters and associated scalers are on the shelves at right.**



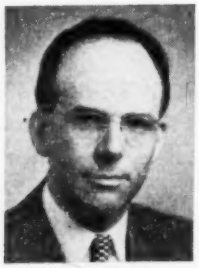
electrical power supply (motor-generator) so that it can operate independently of municipal services. With slight modifications the unit can be used as a mobile field radiological laboratory.

The mobile unit is approximately 20 feet long and requires about 35 feet for curb parking. The electrical service required is 3-wire, 115/230-volt, single phase a. c. with a demand of approximately 5,000 watts. The water system of the unit can be connected to an external supply through a garden hose, although the

internal supply will provide about 10 gallons under pressure and is used when no other supply is available.

The field training unit was first exhibited in Galveston, Tex., in conjunction with the annual meeting of the Texas Public Health Association in February 1952. At the conclusion of this meeting, the training unit was exhibited in Houston, San Antonio, Forth Worth, and Dallas. In March 1952, the unit was used in conjunction with a training course sponsored jointly by the Alabama State Health Department and the University of Alabama and conducted by the radiological health training section, at Tuscaloosa, Ala. From June 26 through 28, the unit was exhibited at the University of Michigan at Ann Arbor in connection with the Fifth Annual Summer Institute on Industrial and Legal Problems of Atomic Energy. In addition, the unit is used for field exercises which are a part of the radiological health courses offered at the Environmental Health Center.

Public Health Service Staff Assignments



Dr. Price

Changes in staff assignments in the Public Health Service recently announced include the following:

Dr. David E. Price, associate director of the National Institutes of Health for the past 2 years, has been named Assistant Surgeon General. He will assist the Surgeon General and the Deputy Surgeon General in the administration of the Service. Dr. Price received his medical training at the University of California School of Medicine at San Francisco, and his doctorate in public health from Johns Hopkins University. A commissioned officer since 1941, his early assignments were in venereal disease control. In 1946 he came to the newly created Research Grants Division and became chief in 1948.

Dr. C. J. Van Slyke has been named associate chief of the National Institutes of Health, succeeding Dr. Price. The first director of the National Heart Institute (since 1948), Dr. Van Slyke's principal responsibilities will be the coordination of the Institutes' programs of research and training grants, disease control and community services, professional training, and relationships with national foundations and health organizations.

Dr. James Watt, for the past several years in charge of the National Microbiological Institute's field laboratory at Louisiana State University Medical School, has been designated the new director of the National Heart Institute. Dr. Watt is known both here and abroad for his work in the enteric and rickettsial diseases.

Mark D. Hollis, chief sanitary engineering officer of the Public Health Service since 1948, has been named deputy chief of the Bureau of State Services. As associate chief of the bureau, Mr. Hollis has been directing the Service's environmental health activities.

Harry G. Hanson, recently serving as executive officer for program in the office of the Surgeon General, will serve as assistant chief sanitary engineering officer.

Paul A. Caulk, formerly executive officer for administration, is now executive officer in the Office of the Surgeon General.

Dr. Joseph O. Dean, formerly associate bureau chief for staff and management services in the Bureau of State Services, has been transferred to the newly created post of associate chief for program development.

Dr. Jack C. Haldeman has been assigned as assistant chief of the Bureau of State Services for regional office and external operations. Formerly he was chief of the Division of State Grants.

Mental Health Screening of School Children

By CHARLES A. ULLMANN, Ed.D.

THE POLICY in community psychiatric clinics of leaving entirely to the patient or his family the responsibility for the decision to seek psychiatric help follows the pattern prevailing in private medical practice. By following this policy, publicly supported psychiatric services tend to focus on those members of the community who are already ill and are perceived as being ill either by themselves or their families.

There is a need to study whether this self-identification policy, in which the essential element is that the initiative must come primarily from the patient or his family, is the most efficient or appropriate basis for the initial selection of patients in clinics whose primary concern is public or community mental health. In time, it may also be necessary to examine the appropriateness of those considerations which commonly enter into the decision as to which of the self-identified applicants obtain treatment services. Some of those considerations are: apparent urgency of the patient's problem, the adequacy of the patient to his life role, estimates of therapeutic promise, economic circumstances, degree of professional interest in the patient's particular problem, immediate availability of therapeutic time, and/or patient's capacity to survive a clinic waiting list.

For public health programs which are geared to preventing illness and promoting the community level of health beyond the point of mere absence of disease, it may be desirable to replace the "trapper" technique of self-identification with the more selective techniques of the hunter. In case-work terms, this means relating clinic intake policy to community needs as defined by survey or screening, developing referral techniques which will permit selection of those cases upon whom the expenditure of professional time will give the greatest return in terms of community mental health, and evolving a

Public Health
MONOGRAPH 7

This article is a discussion of the principal findings presented in Public Health Monograph No. 7, published concurrently with this issue of *Public Health Reports*. The author is the clinical psychologist on the staff of the Prince Georges County (Md.) Mental Health Clinic, a demonstration activity of the Public Health Service, sponsored jointly with the Maryland State Department of Health and the Prince Georges County Health Department. The studies reported were conducted during the school year 1950–51 by the clinic in cooperation with the Prince Georges County Board of Education. The basic findings were presented before the American Psychological Association at its sixtieth annual meeting in Washington, D. C., September 1–6, 1952.

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Ullmann, Charles A.: Identification of maladjusted school children. Public Health Monograph No. 7 (Public Health Service Publication No. 211). U. S. Government Printing Office, Washington, 1952.

rationale for formulating and assessing therapeutic goals.

This paper summarizes the results of a study which is reported in full in Public Health Monograph No. 7, "Identification of Maladjusted School Children." The study deals with the first of the aforementioned questions of policy and method, namely, a survey of the nature and extent of the mental health problem presented by a group of ninth-grade children in a public school system. The investigations were made in an effort to develop a method for identifying those who might need assistance because of problems of adjustment. The problem of effectuating suitable referral techniques, including bringing about an emotional acceptance of the need for service on the part of persons who may be deemed maladjusted, and the problem of establishing guidelines for therapeutic activity, were considered beyond the scope of the study.

The Maladjusted Child

In the study, an attempt was made to learn to what extent judgments by teachers might be relied upon as a means of identifying children who needed special assistance because of adjustment difficulties, that is, an examination was made of the correlation between need for mental health services as expressed in teachers' judgments and need as determined from independent reference points. These independent reference points were the classmates of pupils, each pupil himself, and the opinions of clinicians who were asked to rate the significance for mental health of various items of behavior. Such questions were considered as: To what extent are children who are identified as maladjusted by the teachers the same ones whom classmates would identify as being maladjusted? In terms of clientele who may be served by a mental health clinic, what are the implications of relying upon such key figures as teachers to identify school children who need care? Is there evidence of need for mental health care beyond those needs which are recognized by such observers as teachers? What is included in the term "maladjustment" as used in the school setting? To what extent do teachers and clinicians agree on what constitutes evidence of maladjustment?

Psychological or psychiatric assistance, as used in this context, may be regarded as a service which supplements or reinforces the counseling and guidance services upon which all pupils may draw as they progress through the successive phases of their education. As such, it may be used to support the pupil, parent, school staff, or community in the effort to achieve broad educational and health purposes whenever the classroom program and pupil personnel services ordinarily available require supplementation. While the relationship between such general and special services will vary from place to place and from time to time, according to the relative strength and adequacy of each, the methods employed in this investigation are of general applicability in that the testing and rating techniques are suitable for typical classroom use.

The subjects of the main study were 404 white ninth-grade boys and 406 white ninth-grade girls in the core classes of 23 teachers—21 women and 2 men—in Prince Georges County, Md., during the school year 1950–51. The experimental sample included 97.5 percent of the pupils on the register in these classes and 44.5 percent of the ninth-grade registration in the white public schools of the county. Only one core class was included for each core teacher who participated. Whenever two classes were taught by the same teacher, deliberate choice of the more literate class was made for this study, on the basis of the teacher's judgment.

Forced-Choice Technique

A collateral study was carried on in grades four to eight during the fall of the same school year for the purpose of developing a Forced-Choice Test which, when completed, was used in the study at the ninth-grade level. Forced-choice technique is employed for the purpose of minimizing intentional bias on the part of raters and aiding raters to make more discriminating judgments when bias is not a factor. The essential feature of such tests lies in the pairing of one statement or item, capable of discriminating between upper and lower groups on a trait, with another item which does not have discriminative power but appears equally attractive to raters. Pairs of such state-

ments are often combined into tetrads and raters are then required to choose the most appropriate statement of the tetrad to describe the ratee.

In order to discover the discriminative power of each statement in the eyes of mental health specialists, 22 clinicians were asked to rate each of 194 statements on a 5-point scale of significance for mental health. At the same time, each of 50 teachers was asked to rate on a 5-point scale one "well-adjusted" child and one "maladjusted" child according to the degree to which each statement characterized the child. The correlation between the discriminative power of each statement, as obtained from the clinicians, and the discriminative power, as obtained from the teachers, was 0.86. Teachers and clinicians were in closer agreement on favorable than on unfavorable statements.

While it appeared that clinicians and teachers agreed on the significance of most of the items as indicators of adjustment, they differed on the meaning of politeness and obedience. Teachers felt that politeness and obedience were characteristic of good adjustment whereas clinicians felt that the significance of these items as indicators of adjustment was equivocal. Also, a number of features upon which clinicians rely in judging the adjustment status of children are matters relatively unavailable to classroom teachers, such as preference on the part of a child for associating with a different age or grade group than the one to which he is assigned

Measures of Adjustment Status

Six measures of adjustment status were then obtained for each ninth-grade child:

1. From teachers, a categorical rating of each child as well adjusted, moderately maladjusted, or seriously maladjusted, together with an estimate by the teacher of whether this rating was given with much, some, or little confidence.

2. From teachers, an adjustment score on the specially constructed Forced-Choice Test.

3, 4, 5. From pupils, adjustment scores on the Self and Social components of the California Test of Personality Intermediate Form A and the Basic Difficulty Scale of the SRA Youth Inventory Form A.

6. From classmates, a standard score derived from sociometric ratings of probable occupational adequacy.

Teachers thought that 8 percent of the ninth-grade children were likely sooner or later to have serious problems of adjustment and to need special help or care because of such problems. In 1927, Wickman reported that teachers considered 7 percent of elementary school children to be serious behavior problems. An intervening study by Rogers in 1940, using multiple criteria, of which teachers' judgments were but one, assessed an even higher percentage (12) of children in the first six grades as seriously maladjusted. Although allowance must be made in these comparisons for differences in sampling, phrasing, and basis of assessment, it appears that teachers regard serious maladjustment and, presumably, the need for mental health assistance, to be at least as great now as at the time of the Wickman study.

Data from all three of these studies and data from juvenile courts and psychiatric clinics agree in reporting more maladjusted boys than maladjusted girls. The ratios vary from 1.4 boys to 1 girl in psychiatric clinics to more than 4 boys to 1 girl in courts. This ratio is reversed among adult applicants to psychiatric clinics, where women outnumber men. In the present study, and in the Wickman study, teachers rated four boys seriously maladjusted to every girl so rated.

Classmates, to an even greater extent than teachers, considered boys to be more maladjusted than girls, so that, regardless of the merit of the judgments, it appears that boys receive, in the combined criticisms of peers and teachers, a much greater volume of adverse appraisal than do girls, with such further effects on boys as that disapproval may itself occasion.

There was a marked difference in the way teachers as a group rated boys and the way they rated girls. The teachers gave the girls more favorable ratings than the boys and felt more confident of these ratings, notwithstanding the fact that teachers' ratings for girls bore relatively little resemblance to the way the class as a whole rated girls or to the way the girls felt about themselves. This is shown by correlations no higher than 0.23 between teachers' categorical ratings and measures obtained either from classmates or from self-descriptive personality tests. Teachers' ratings of boys, however, showed a much closer relationship to

classmates' ratings than did teachers' ratings of girls.

The confidence felt by teachers in their ratings was found to vary with the merit of the rating rather than the sex of the child; that is, teachers felt confident about a rating which was favorable regardless of whether they were rating a boy or a girl.

On the basis of these data, it was hypothesized that teachers' ratings of girls were favorable because the teachers lacked opportunity to observe or lacked awareness of the manner in which girls made their significant adjustments, and that favorable ratings were often awarded to girls in the absence of positive evidence indicating that unfavorable ratings should be given. In the case of boys, adverse ratings appeared to have been given in the presence of evidence derived from acted-out behavior. This hypothesis appeared to be supported by a study of the characteristics and interrelationships of the remaining measures employed with the ninth-grade children, as shown below.

It appeared, from the data obtained in grades 4 to 8, that teachers rated most comfortably those items of behavior which came closest to their day-to-day experience with children, namely, attitudes toward and habits of school work. They felt less confidence in rating aspects of children's behavior which referred to home or social relationships, to passive hostility, and to matters about which children worry.

The Forced-Choice Test, employing items to which teachers felt they could respond with confidence, focused mainly on objectively observable aspects of behavior. With this test the ratio of boys to girls rated maladjusted by teachers was raised over that found when teachers assessed children categorically and also over that found with ratings by peers. The correlation of the two methods of obtaining ratings by teachers, categorical and forced choice, was much higher for boys (0.73) than for girls (0.43). Use of this test resulted in a substantial (0.49) correlation between ratings of girls by teachers and ratings of girls by classmates, in contrast to the low (0.23) correlation obtained when teachers rated the girls categorically. In the case of boys, a substantial correlation appeared between teachers' categorical ratings and sociometric ratings. This was not significantly altered by the introduction of the Forced-Choice Test. The Forced-Choice Test acted as a kind of telescope which, while it failed to add to the picture of boys obtained through teachers' unaided vision, permitted the variations in girls' adjustment to become apparent.

Personality Tests

Whereas ratings, as exemplified by the Forced-Choice Test, dealt with observable evidence, the personality tests relied mainly on report by the subject of his own feelings and attitudes. Focusing upon items of "observable" or acted-out behavior tended to increase the imbalance against boys; focusing upon "subjective" data had the opposite effect; that is, it tended either to minimize this imbalance or to show the girls to be more maladjusted than the boys, as exemplified by the results on the SRA Youth Inventory Basic Difficulty Scale. Furthermore, according to the published normative data, girls acknowledge much more often than boys feeling disturbed about the problems included on the Basic Difficulty Scale. Of the list on which girls feel more disturbed, they exceed boys by the greatest amounts in the following:

	Boys (percent)	*Girls (percent)*
I worry about tests	34	52
I worry about little things	26	44
I'm easily excited	14	32
I have a "crush" on an older person	4	13
My feelings are easily hurt	19	39
I'm afraid to speak up in class	15	29
I have frequent headaches	7	16

Boys respond in higher percentage than girls on the following five items:

	Boys (percent)	*Girls (percent)*
I think about sex a good deal of the time	17	8
I am too restless to stay in school	10	5
My teachers are too strict	9	5
I'm losing faith in religion	8	5
Is it wrong to deny the existence of God?	9	6

It is of particular interest to note that while teachers felt very little confidence in their ability to make ratings on items having to do with children's tendency to worry, such items are among those which, on the SRA Youth Inventory, differentiate the adjustment problems of girls most sharply from those of boys. This observation and the fact that the correlation of teachers' ratings and sociometric ratings is increased so much for girls when a forced-choice technique replaces the categorical method indicate that teachers do not readily react to the symptomatic aspects of girls' adjustment.

Essentially different pictures of the adjustment of children are obtained whenever children's adjustment is assessed through judgments by raters and through judgments from self-perceptions. Teachers' ratings of adjustment and sociometric ratings obtained from classmates showed a much closer relationship to each other than to scores on personality tests. Adjustment scores on self-descriptive personality tests also correlated more highly among themselves than they did with ratings. Correlation coefficients between measures representing each of these approaches or categories of measurement (that is, ratings by observers versus adjustment scores on self-descriptive personality tests) were low, ranging from 0.15 to 0.33. The correlation between teacher and sociometric ratings was 0.56, and the correlations among the personality tests ranged from 0.47 to 0.73. The size of the correlation (0.61) between two tests of dissimilar format and content (SRA Basic Difficulty and California "Self" scores) suggests that they are measuring a meaningful attribute of the personality. Ratings were more highly intercorrelated for boys than for girls and self-descriptive personality test scores were more highly intercorrelated for girls than for boys.

Summary

On the basis of the study of white ninth-grade public school children, the assessment of maladjustment appears to require at least two approaches, each of which is sensitive to a particular class of symptoms. Ratings appear to be better predictors of the response by society to acted-out behavior, and self-descriptive data appear to be better predictors of that aspect of adjustment which has to do with feelings, attitudes, inner tensions, and what the individual himself will choose to do. Children identified as maladjusted by each of these two general methods are likely to exert considerably different demands upon therapeutic time and upon health, welfare, and educational funds. This problem ultimately may be reducible to comparing the present defiance of authority on the part of a boy and the probability that he will be taken into juvenile court with inner tensions on the part of a girl and the probability that as an adult she will make application in her own behalf at a mental health clinic.

For the present, both types of measure (ratings by observers and self-descriptive data) appear to be necessary to a full picture of adjustment status. Further research may appropriately be directed toward examining the specific criteria for which each type of predictor is valid.

As a result of fractionating the term "maladjustment" into two components, each of which has a potential relationship to different forms of behavior, two questions are posed for future study: (1) the relative degree to which persons of each type present a significant locus of concern for public mental health programs, and (2) the extent to which various techniques of discovery and referral are appropriate for the mental health needs represented in these two varieties of symptomatic behavior.

PHS films

Rodent Control Series

16 mm., sound, black and white, 1951.

Audience: Public Health personnel and others interested in the study of rats and the practice of rat control. Sections of it may be of interest to school groups.

Available: Loan—Federal Security Agency, Public Health Service, Communicable Disease Center, 50 Seventh Street, Atlanta, Ga. Purchase—United World Films, Inc., 1445 Park Avenue, New York 29, N. Y.

This series of seven films, produced jointly by the U. S. Army and the Public Health Service, is based on footage obtained by filming rats over long periods under conditions simulating natural ones as nearly as possible. A yard was prepared containing food and terrain favorable to rat life, and the rats were conditioned, over a period of time, to the noise of the motion-picture camera and the necessary lighting arrangements, so that they came to ignore them. Cut-away embankments with glass facing were prepared in order to make visible the burrowing habits of the rats.

1. *The Rat Problem—M37a, 25 minutes*

The extent and seriousness of the health hazards and economic damage created by rat infestation are emphasized, both in terms of history and the present. This film develops the idea that study of rat habits and living patterns is necessary to the practice of effective control.

2. *Habits and Characteristics of the Norway Rat—M37b, 28 minutes*

The Norway rat is described in detail and compared with the roof rat as to size, strength, and features; the living pattern is shown, including feeding habits, breeding habits, and the environmental factors which allow the rats to flourish.

3. *Habits and Characteristics of the Roof Rat—M37c, 14 minutes*

Similar to No. 2 in the series, this film describes the roof rat and compares and contrasts its habits and abilities with the Norway rat. The emphasis is on what these characteristics mean in terms of the rat's relation to man.

4. *Practical Rat Control—I, Sanitation Techniques in Rat Control—M37d, 21 minutes*

Using the film record of the rat's living and food gathering habits, the film shows practical methods for eliminating factors necessary for the rat's existence. Emphasis is on the proper disposal of garbage, storage of food, and cleanliness.

5. *Practical Rat Control—II, Ratproofing—M37e, 18 minutes*

Rats are observed pitting their strength and gnawing abilities against various test materials. On the basis of these demonstrations, the proper methods are shown for preventing rats from gaining entry into a building or buildings, either by burrowing, or by getting in above ground.

6. *Practical Rat Control—III, Rat Killing—M37f, 36 minutes*

This film shows the advantages and disadvantages and the techniques for using such rat poisons as red squill, ANTU, arsenic trioxide, 1080 water, and warfarin, and for using rat traps. The film emphasizes that for effectiveness of these techniques, sanitation and ratproofing are essential.

7. *Rat Ectoparasite Control—M37g, 12 minutes*

The importance of the rat flea in transmitting disease from rat to man is stressed, as well as the increased incidence of human infestation when the rat host has been killed. Methods for eliminating the rat flea population with DDT before attempting to kill the rats are described in detail. The film emphasizes the importance of rat control—sanitation, ratproofing, and rat killing—in conjunction with control of rat ectoparasites, for the complete elimination of rat-borne diseases.

Rural Rat Control

16 mm., sound, black and white, 16 minutes, 1951.

Audience: Public health personnel and others concerned with rat control.

Available: Loan—Federal Security Agency, Public Health Service, Communicable Disease Center, 50 Seventh Street, Atlanta, Ga. Purchase—United World Films, Inc., 1445 Park Avenue, New York 29, N. Y.

This film shows how the conditions on a typical farm favor the growth of rats by providing them with food sources and suitable harborages. The methods of ratproofing buildings and food sources, and the measures for sanitary garbage disposal are described in detail. Methods are also shown for poisoning the rats, which are now deprived of food and harborage, by using red squill, calcium cyanide, and warfarin. A check of the effectiveness of the rat control and a continued vigilance against further invasion is the use of talcum powder or flour to detect rat tracks.

New York State Cancer Control Program

By VINCENT H. HANDY, M.D., M.P.H. and PAUL R. GERHARDT, M.D., M.P.H.

CANCER, one of the major disease problems of our day, is one of our chief public health problems. In recent years, its control has become a prime concern of the medical profession, the health agencies, and the public. Public interest and public demand for action have been motivated largely by fear and alarm over the increasing incidence of and the high mortality from cancer. Cancer control may be defined as an organized, planned endeavor to apply the principles of prevention, early diagnosis, prompt and adequate treatment, and care—including the provision of the best care and comfort to those in the advanced stages of cancer.

In carrying out the objectives of cancer control, the New York State Department of Health plans and works in cooperation with the district, city, and county health departments, the organized medical and dental professions, the New York State Division of the American Cancer Society, the State department of social welfare, medical schools in the State, nursing associations, various research centers, and the Public Health Service and its National Cancer Institute.

The Program

In any one year, cancer afflicts well over a half million people in this country. On the basis of Levin and Goldstein's study of cancer incidence, mortality, and expectancy (*1*), we can predict that a 20-percent minimum of all persons in New York State will develop cancer during their lifetime.

All data reported herein for New York State, except where indicated, are exclusive of New York City. Likewise, the terms "upstate New York" and "upstate area" refer to New York State exclusive of New York City.

In 1951, 19,449 new cases of cancer were reported. At any one time in the upstate area, it is estimated that approximately 50,000 persons have cancer in various stages. The amount of work ahead is overwhelming and provides a scope of action for all professions and organizations.

New York State's interest in cancer control activities has a long history, beginning at the end of the 19th century. In 1898, Dr. Roswell Park, a Buffalo surgeon, persuaded the State legislature to grant $10,000 for the institution of the State pathological laboratory in the University of Buffalo School of Medicine. Roswell Park Memorial Institute, the State cancer hospital in Buffalo, has developed from that source. A division of cancer control was established in 1931 at the institute with public education as its chief function. Upon recommendation of the New York State Legislative Cancer Survey Commission in 1939, cancer was made a reportable disease in the State, exclusive of New York City; the cancer control division was transferred to the State health department in Albany and its functions were broadened to permit the development of a more comprehensive program.

These beginnings and our progress since were made possible with the active support and influence of the medical profession and the citizens of the State. In more recent years,

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this support and public action has produced a well-organized and active voluntary health agency: the New York State Division of the American Cancer Society.

The programs of the New York State Division of the American Cancer Society and of the State health department supplement and complement each other. On the State level, key personnel in cancer control serve on the board of directors and executive committee of the society. On the county level, local physicians, health officers, and the nurses take an active part in its program.

To point out the important contribution of the New York State Division of the American Cancer Society, one need only mention a few of the many projects for which funds have been allocated in the past year. Among these are financial support to tumor clinics and detection centers, payment for cytological and pathological services in some areas, intensive public educational programs, establishment of information centers or "Friendly Red Doors," nursing services, follow-up studies, professional fellowships, limited financial aid to needy cancer patients, and the development of a large and active volunteer group of workers.

The cancer control program of the department of health aims to assist all the people of the State in obtaining the best medical service for prevention, diagnosis, treatment, and care of cancer, and to advance knowledge with respect to its control. It covers eight basic fields: public education; professional education and training; cancer reporting; pathological diagnostic service; nursing services and training; promotion of tumor clinics; promotion of detection centers; and maintenance of a State cancer hospital.

Public Education

The necessity is well established for constant education of the public regarding the importance of prompt medical care for various symptoms and of periodic physical examinations in the absence of symptoms. Public education is carried on by means of pamphlets, lectures, sound movies, radio and television programs, and exhibits. Most of the county medical societies have speakers' bureaus through which trained medical speakers are available to public groups for cancer education talks. Participating physicians may be reimbursed $10 apiece by the department's bureau of cancer control. The local branches and the "field armies" of the State division of the American Cancer Society have played an important part in stimulating community interest in the lectures.

In all, 727 public cancer education talks to 38,985 persons were reported in 1951 for the upstate area, representing an increase of 27 percent over the 531 talks reported for 1948. Unquestionably, others were not reported. Our figures show that over half the talks were given by local physicians in their respective areas, indicating the extent of physician participation at the local level.

Professional Education and Training

Professional education must be a major activity of any cancer control program, for the physician is the one individual upon whose shoulders rests perhaps the greatest responsibility. Frequently, life and death depend on his efforts to recognize precancerous lesions, to diagnose cancer early, to render adequate treatment, and to secure competent consultation. A description follows of the many types of professional education employed throughout the State.

Medical Society Meetings. Many medical societies periodically have speakers on cancer at their regularly scheduled meetings. If desired, an honorarium of $25 can be obtained for the speaker through the bureau of cancer control of the State health department.

Cancer Teaching Days. An effective means of professional education for both medical and dental groups is the cancer teaching day. A program of afternoon and evening lectures and demonstrations by invited authorities is offered on various aspects of cancer diagnosis, treatment, or research. Physicians from surrounding counties are invited to attend. The cancer teaching days are sponsored by the New York State Medical Society, the county medical societies, and the State and local health departments. The State health department pays an honorarium of $50 to each speaker.

Literature. One aspect of professional education has been an attempt to prepare and distribute cancer literature of interest to the professional person. During the last 2 years, the department has distributed:

"Cancer Nursing Manual"—to each public health nurse in the State.

"Program Plan—Cancer Control"—to all physicians in the State, exclusive of New York City.

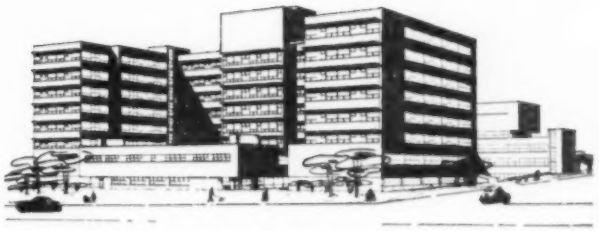
"Occupational Cancer Manual"—to each physician in the State.

"Cancer Control in Public Health"—to all local health officers in the State with the exception of New York City and to members of the Public Health Cancer Association of America.

Tumor Clinic Conferences. In accordance with the recommendations of the American College of Surgeons, local hospitals are urged to use their tumor clinics for professional education. The bureau of cancer control has encouraged tumor clinic staffs to bring in consultants from other areas and medical centers wherever possible to hold clinical sessions and physicians' conferences. For this type of service, the bureau reimburses qualified consultants at a rate of $50 a day.

Teaching of Tumor Pathology. A joint project of the State health department and the Memorial Hospital in New York City, the program of teaching tumor pathology was begun in 1948 and continued with a special grant from the National Cancer Institute of the Public Health Service. Teaching material consists of slides and complete clinical histories of selected cancer cases prepared at Memorial Hospital and then distributed by the department's division of laboratories and research to pathologists in charge of the 144 approved laboratories in the State (*2*).

Fellowship Program. Fellowships are available to aid physicians in obtaining postgraduate experience or training in fields relating to cancer control. The candidate physician usually applies directly to the source from which he intends to obtain his training, whether it be a hospital, a clinic, or an independent medical specialist. Upon acceptance, he applies to the department for a fellowship to help in payment of tuition, and to include a monthly stipend of $300 and traveling expenses. Any physician residing in the State is eligible, provided the training will benefit the cancer control program. Usually, applicants are physicians associated with tumor clinics or detection centers, or are pathologists wishing additional training in cytology. Fellowships may be granted for a week to a year and have included training in surgery, medicine, pathology, radiology, otolaryngology, and gynecology. From the beginning of the program in May 1947 until July 1, 1952, 84 New York State physicians have received a total of 262¼ months' training.



Architect's drawing of addition to Roswell Park Memorial Institute, Buffalo—the New York State cancer hospital.

Postgraduate Courses. Several different types of courses have been organized during the last few years at different centers.

In 1949 and again in 1951, a 2-day postgraduate course on malignant diseases was held for the general practitioner in Buffalo. This was possible through the cooperation of the University of Buffalo Medical School, the Erie County Medical Society, and the Erie County and State health departments. Tuition of $20 per physician was paid by the State health department. It is hoped to continue the course on a yearly basis and to start similar courses in other medical centers.

A 2-week course in cancer diagnosis and treatment was given in 1952 by the Columbia University faculty of medicine at the Francis Delafield Hospital in New York City, and sponsored by the university, the New York City and State departments of health, and the State medical society. Tuition fellowships amounting to $90 for each physician were granted through the bureau of cancer control of the State health department.

A 1-week intensive course in the newer aspects of diagnosis and treatment has been started for interested full-time health officers of the State at Roswell Park Memorial Institute. A clinical

refresher course, it is designed to show the work being carried out at the State cancer hospital. It is held from time to time and is usually limited to five physicians.

During the last few years, the Academy of General Practice organized meetings for its members devoted to the subject of cancer. These have been both on the State and county level. This trend is one which the bureau of cancer control encourages whenever possible. The bureau also assists with reimbursing the speakers.

Table 1 shows the distribution of professional cancer education meetings in 1951.

Cancer Reporting

Cancer reporting became mandatory in upstate New York by legislative action on January 1, 1940. In 12 years of reporting, the interest and cooperation of the physicians, of the laboratories, and of the hospitals throughout the State have been excellent. The completeness of cancer reporting compares favorably with that of other reportable diseases in the State. Each year physicians, laboratories, and hospitals report over 19,000 new cancer cases of State residents.

It is realized that collecting morbidity reports should not be an end in itself but that its value should be determined by the use of the reports. On the basis of the reports, a central cancer register has been set up in Albany.

Table 1. Professional cancer education by type of audience—New York State, exclusive of New York City, 1951

Type of audience	Number of meetings	Number of talks	Audience
Postgraduate course (physicians)	3	37	80
Medical societies	11	13	536
Other physician groups	27	33	1,410
Hospital staff (physicians)	17	14	580
Medical students	4	4	185
Dentists, dental assistants, hygienists	8	8	335
Nurses, student nurses	76	73	2,151
Pharmacists	2	2	296
Other professional groups	3	5	115
Total	151	189	5,688

Likewise, cancer rosters are maintained in the local city, county, and district health offices. They have proved valuable aids for follow-up, public health nursing services to cancer patients, and educational activities. The reports also form the groundwork for statistical information appearing in the annual report of the bureau of cancer control, and they make possible annual summaries of the cancer cases for each full-time health officer for his particular area. A summary includes number of cases by age, sex distribution, and most common sites. The summary for total cancer cases reported in upstate New York is also sent to the health officer for comparative purposes. In addition, more detailed statistical studies in cancer incidence, mortality, and survivorship are made.

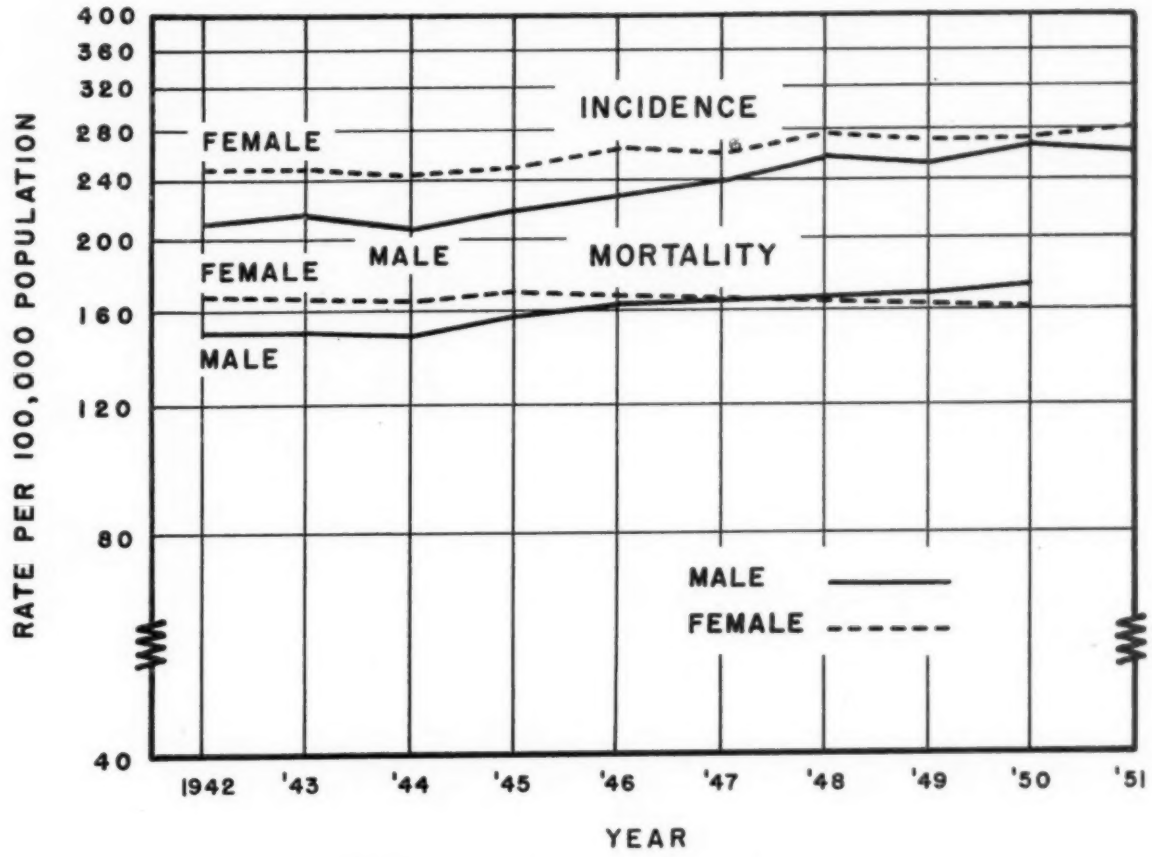
The trend of incidence and mortality rates from cancer for the last 10 years (fig. 1) shows that incidence of cancer in both sexes is increasing at a more rapid rate than mortality. In fact, the mortality rate for females has gradually declined since 1945. It is noteworthy that while the crude incidence rate for females continues at a level higher than that for males, the crude mortality rate is lower for females since 1948.

Incidence rates according to site are compared in figure 2 for the years 1942–44 and 1949–51. Cancers of the skin and lung-bronchus have shown the most marked increase, and cancer of the stomach a decrease. There has been a marked rise in incidence rates for all sites, from 237.0 new cases per 100,000 population during 1942–44 to 265.3 for the 1949–51 period.

Pathological Diagnostic Service

A pathological diagnostic service is available to any physician requesting it and is of great importance in facilitating early diagnosis and treatment. Tissue diagnosis may be obtained by sending a specimen to the department's division of laboratories and research in Albany or to its branch laboratory in New York City. In addition, such service may be obtained locally at most approved laboratories. Of the 12,050 laboratory specimens examined in 1951 by the laboratories and research division, 1,402 (11.6 percent) were found to be malignant.

Figure 1. Reported crude rates of cancer incidence and mortality in New York State exclusive of New York City for 1942–51. Age-adjusting data and 1951 mortality rates are not available.



One hundred of the laboratories in New York State approved for pathology by the commissioner of health also do cytological examinations. They are scattered throughout the State and serve practicing physicians.

Nursing Services and Training

The need for efficient follow-up of cancer patients, both to evaluate the results of therapy and to maintain contact between physician and patient, is generally recognized. There also exists a widespread need for home-nursing care of patients which is met in many areas by public health nurses. To help provide adequate nursing service to the cancer patient, 2-week courses of intensive didactic and practical training have been under way since 1946 at Roswell Park Memorial Institute. They are offered at least twice a year to all supervisory public health nurses from official and voluntary agencies in the State as well as to some staff nurses. Nurses in key positions, such as supervisors at cancer clinics, clinical instructors, university educators, and a limited number of consultant nurses from other States have also attended. From 1946 to July 1952, 239 nurses have taken these courses. The University of Buffalo School of Nursing offers similar courses for college credit to their graduate nursing students with instruction by the staff of Roswell Park Memorial Institute. As of July 1952, 54 nurses from the university school of nursing had attended the courses at the institute.

Arrangements can also be made through the State health department for a 4–6 weeks' course in cancer nursing at Memorial Hospital in New York City with college credit from New York University. From March 1949 to July 1952, 30 nurses working upstate have taken this course.

The increasing interest in cancer nursing

services and staff educational programs exhibited by most local health units is attributed to the realization of the local full-time health officer that knowledge and techniques in cancer control keep changing, as in any other field. The nurse must be kept up to date to benefit from her knowledge and practice. To achieve this, there must be continuous in-service training. The two cancer consultant nurses of the bureau of cancer control work closely with the supervising nurses of the local health departments in planning and participating in the in-service training programs. The programs are designed specifically for the staff nurse in the field. The method of in-service training varies from area to area, from 1-day meetings to meetings of several days spread over several months. The training usually consists of lectures, seminars, and group discussions of such topics as etiology, prevention, pathology, and therapy. The content of each program is adapted to the cancer problem within the particular locality and to the interests and needs of the nurses.

Promotion of Tumor Clinics

Tumor clinics and tumor diagnostic clinics have become an essential part of the cancer diagnostic and treatment program. Since late in 1939, when the expanded cancer program of the State health department was launched, the number of clinics in upstate New York increased from 23 to 57, as of July 1, 1952. Twenty-eight receive financial assistance in the form of reimbursement for the services of examining physicians, of a consultant, and for part-time clerical and nursing services. In considering the population distribution in upstate New York, as based on the 1950 census, it was found that only 19.6 percent of the people live more than 25 miles from either a tumor clinic or a tumor diagnostic clinic. One can say, therefore, that 80 percent of the people live within 25 miles of a clinic where they may receive expert advice and treatment.

Since tumor clinics are usually organized by the individual hospital medical groups, their staffing and operation is entirely a local staff matter. The bureau of cancer control is available to help or guide in organization or operation. The tumor clinic program has the full endorsement and cooperation of the State medical society and the Tumor Clinic Association of the State of New York. Periodically, a representative of the American College of Surgeons visits and inspects the individual clinics.

Aside from the patient aspect of the tumor clinic, one should not overlook the splendid opportunity in the tumor clinic for professional education. With this in mind, whenever promoting the formation of tumor clinics, personnel of the cancer control bureau emphasize the importance of using the clinic for tumor clinic conferences, with house and staff physicians participating, and possibly, a consultant brought in from another area to conduct the conference. The general practitioner is invited and encouraged to attend.

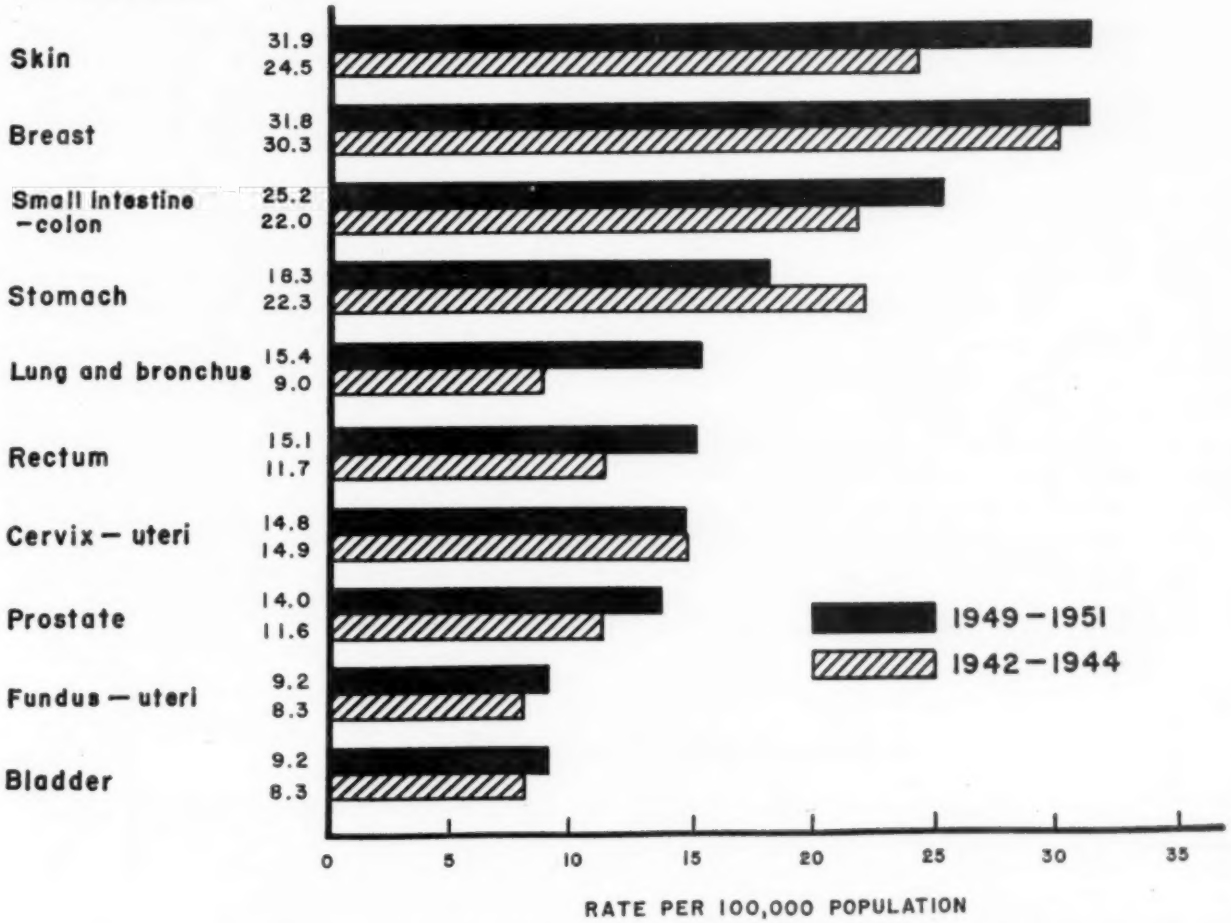
Promotion of Detection Centers

Detection centers are a relatively new procedure in cancer control, having developed within the past decade. Efforts to encourage periodic health examinations have not been too successful, but it is encouraging to note that the public is aware of the value of the detection center type of examination. To be most effective in aiding control of cancer, the examination should be repeated every 6 months. Waiting lists should not be extended beyond 4 to 6 weeks, since delaying appointments longer would defeat the purpose of the examination. It is also important to avoid giving the patient a false sense of security once he has been examined. A person going through a center who is not warned may neglect the early symptoms requiring medical attention which might develop before his next examination.

There were 6 detection centers upstate in 1947. By July 1, 1952, 18 were open. Of these, 17 receive some financial aid from the bureau by way of reimbursement for services of physicians, nurses, and clerical staff. In 1951, 5,254 individuals were examined in detection centers, and positive findings of some form of abnormality were found in 74 percent. Of the pathological conditions found, 24 percent were precancerous and 0.7 percent, malignancies (*3*).

The cancer detection center program has had

Figure 2. Comparison of the major cancer sites for new cases reported for 1942–44 and 1949–51 in New York State exclusive of New York City. The annual average rates are per 100,000 population.



the approval and cooperation of the State medical society. A few counties have shown an interest in organizing programs for cancer detection in the individual physician's office, but it is too early to evaluate the extent to which they answer the needs of the people.

Roswell Park Memorial Institute

Roswell Park Memorial Institute in Buffalo is a 110-bed cancer hospital operated by the department, and is an essential part of the cancer control program. An $8 million building program at the institute will bring its bed capacity to 516 beds in 1954 and will expand and improve its research facilities.

The institute has a five-point cancer program of prevention, diagnosis, treatment, research, and education. Patients may be referred for aid in diagnosis and for consultation and special treatment. In 1951, 2,454 new patients were admitted upon referral from the family physician; in addition, there were 29,187 revisits by former patients (*4*). Approximately 43 percent of the new patients referred were diagnosed as having malignant conditions.

The educational program at the institute includes instruction of medical, dental, and pharmacy students from Buffalo University, postgraduate instruction in cancer to resident physicians and interested practicing physicians, and training courses for public health supervising nurses. Research is conducted in physics, biophysics, nuclear physics, biology, and genetics.

The institute provides valuable consultation services not only to the practicing physician but to the tumor clinics, aiding them in solving

difficult diagnosis and therapy problems. Since all patients are referred by the practicing physician, Roswell Park Memorial Institute has greatly helped him carry out his responsibility of early diagnosis and adequate treatment for the cancer patient.

Summary

The program of the New York State Department of Health in the eight major fields of cancer control activities was discussed. These are: public education, professional education and training, cancer reporting, pathological diagnostic service, nursing services and training, tumor clinics, detection centers, and maintenance of a State cancer hospital. All of these activities properly integrated are essential for the cancer control program in New York State. These eight basic fields can be used as a framework in setting up a program in other areas, with modifications to suit the needs and conditions of the individual area. Although the primary responsibility of the cancer patient rests with the individual physician, the responsibility for a comprehensive cancer program rests with the medical profession, the health department, and the cancer society.

REFERENCES

(1) Levin, M. L., and Goldstein, H.: Cancer incidence, mortality, and expectancy in upstate New York. Paper given at 4th International Research Congress, St. Louis, Mo., September 2–7, 1947.

(2) Proceedings, 6th annual meeting, Public Health Cancer Association of America. New York City, October 24, 1949.

(3) New York State Department of Health, Bureau of Cancer Control: Annual report 1951. Albany, 1952.

(4) Forty-first annual report (1951) of the Board of Visitors and the Director of the Roswell Park Memorial Institute. Buffalo, N. Y., 1952.

State Crippled Children's Programs

Congenital physical defects afflicted one in every five children who received services under State programs for crippled children in 1950, according to a statement issued in September by the Children's Bureau of the Social Security Administration, Federal Security Agency. Reports of State agencies administering such programs showed that 44,000 of the 214,000 crippled children served by the programs during the year were born with some physical defect. The total number of children born with physical defects is unknown, the Children's Bureau stated.

The States vary in the scope of conditions for which they furnish program care. Every State includes all children with handicaps requiring orthopedic or plastic treatment (harelips, cleft palates, clubfeet, deformed bones, serious burns, bone and joint tuberculosis, and poliomyelitis). Nearly all assist children with cerebral palsy and arthritis; more than half the States include children with rheumatic fever and cardiac conditions; and some provide attention for children with epilepsy, congenital syphilis, and sight and hearing handicaps.

Recent advances in cardiac surgery have brought an increasing interest in treatment of children with congenital heart defects, the Children's Bureau said. Because the necessary skills and equipment for such treatment are not available uniformly throughout the country, the Children's Bureau has established a special fund to develop regional heart centers where children can go for treatment if it is not available locally.

Field Treatment of Trachoma in North Vietnam

In 1951, 200,000 persons were treated by mobile teams organized by the United States Mutual Security Agency in cooperation with North Vietnam authorities

By ERWIN BRAFF, M.D., and WARREN WINKLESTEIN, M.D., M.P.H.

TODAY, American public health specialists of all kinds—health officers, sanitary engineers, nurses, laboratory technicians, and health educators—are participating in technical assistance programs being conducted by the Technical Cooperation Administration and the Mutual Security Agency (formerly Economic Cooperation Administration) in many parts of the world. These programs are not only contributing to the welfare of the countries in which they operate, but, through their effect in bolstering the economic and health standards of the participating nations, are aiding in the establishment of stable governments.

This field report from the public health division of the Special Technical and Economic Mission to Cambodia, Laos, and Vietnam was prepared by Erwin Braff, M.D., and Warren Winkelstein, M.D., M.P.H., both of the Public Health Service. The program described was developed under the general direction of Lewis C. Robbins, M.D., M.P.H., of the Public Health Service, chief of the division. Dr. Braff is chief of the trachoma control program and Dr. Winkelstein is regional representative in North Vietnam for the division.

Blockhouses built of adobe bricks, such as the one shown here, or of thatching are located throughout the delta. The villagers in the surrounding area gather in these houses for the night.

Technical assistance in improving health conditions includes a variety of activities. It may take the form of guidance in constructing facilities or in establishing programs. It may involve the training of personnel or the operation of demonstration field projects. The trachoma treatment program presently operating in North Vietnam (Tonkin) is but one of the several public health programs fostered by the Mutual Security Agency's Special Technical and Economic Mission (STEM) to Cambodia, Laos, and Vietnam.

Conditions in North Vietnam

Cambodia, Laos, and Vietnam make up the Associated States of Indochina, a part of the French Union. These countries, particularly Vietnam, have been torn by bitter civil war since 1946. In North Vietnam, one of the three administrative regions of Vietnam, the areas held by the communist-led Viet Minh as of April 1952 comprised about three-fourths of the land area. Essentially all that was held by the French Union forces was the Red River Delta and a narrow coastal strip leading up to the Chinese border (shaded area on map). However, in the delta live approximately 10,000,000 people. The area includes roughly 15 provinces, each province divided into districts, and a district containing as many as 50 villages.

Complicating the situation in North Vietnam is the fact that even within the so-called perimeter of control there are many areas which are Viet Minh controlled. Everywhere in the delta stand blockhouses, and military operations frequently destroy the tranquillity of the rice fields. But in spite of these factors, the economy of the area is improving.

Technical aid in Southeast Asia has as one of its primary purposes the strengthening of the democratic bloc of nations. In areas already under strong communist influence and close to Communist borders, such as North Vietnam, it was felt that programs capable of having prompt and widespread effect should receive priority. The term "impact program" is used to designate such efforts. It was hoped that impact programs would reach enough people quickly and effectively to demonstrate that the United States is concerned with human welfare. Communist propaganda has apparently led many Asians to feel that American foreign policy is aimed at underwriting colonialism and exploiting the people and lands of Asia in a power struggle with the Soviet Union. Military aid alone is not enough in view of the vast social problems evident to the common man in Asia and the exploitation of these problems by communist agitation. Thus public health technicians in this area have been faced with prob-

An "infirmier" (nurse) applies aureomycin ophthalmic ointment to a young patient with trachoma.

lems never encountered in conventional practice at home.

Trachoma Prevalence

In August 1950, the public health division of STEM began operations in the Red River Delta of North Vietnam. It has long been known, and was soon apparent to Mission members, that this was a region of intense trachoma prevalence. Casual observations in numerous villages brought forth estimates that as high as 50 percent of the population was suffering from gross eye lesions. At the Ophthalmologic Institute of Hanoi, capital of North Vietnam, hundreds of cases of trachoma, in all stages, were seen daily. In confirmation of these estimates, a study conducted by qualified ophthalmologists of the institute revealed evidence of trachoma in 283 out of 406 boys between the ages of 6 and 24 at an orphanage on the outskirts of Hanoi, an attack rate of 70 percent. Local ophthalmologists and health officials agreed that probably more than 70 percent of the population suffer from active trachoma at some time during their lives.

The facilities for dealing with this problem consisted of the following: The Ophthalmologic Institute of Hanoi, which had been established under French auspices, contained about 100 beds and an active out-patient clinic. It was staffed by two fully qualified, European-trained ophthalmologists, several part-time assistants, and a varying number of interns and medical students. The annual (1951) in-patient load was 6,383, and the out-patients numbered 47,567. Of the 15 provincial hospitals existing in 1946, only 3 remained in operation. Only 2 of the other 12 provinces were fortunate enough to have a physician. In addition to these facilities, there were 100 provincial and district dispensaries staffed by "nurses," generally men with 1 to 2 years' nurses training. Trachoma treatment consisted of conjunctival "brushing" and copper-sulfate instillations.

A group of villagers in North Vietnam have been assembled to be examined for trachoma. Note evidences of trachoma and its late complications.

The patient is registering for an eye examination. His name is recorded, and he is given a personal record card.

Faced with this situation, local health officers were anxious to develop a treatment program. Reports had raised the hope that aureomycin might be a specific in trachoma treatment. Therefore, under the auspices of STEM and with a grant of aureomycin from a manufacturing firm in the United States, a study was set up at the Ophthalmologic Institute. This study revealed aureomycin to be extremely effective in curing secondary infections and apparently in arresting the early inflammatory stages of the disease. Even advanced cases claimed considerable subjective improvement. Despite the inconclusive nature of these results, regional health officials, as well as mission members, favored the establishment of a mass treatment program using aureomycin ophthalmic ointment.

Organization of Mobile Teams

Lack of security in the villages precluded the possibility of stationing treatment teams in the field for the time necessary for the application of an effective treatment schedule. Minimal treatment consists of two to three instillations of aureomycin ophthalmic ointment daily for 5 days and conjunctival brushing on the first, third, and fifth days. A practical solution was the establishment of teams equipped with jeeps in the provincial capitals. So equipped, a team could reach any village in the province in less than an hour.

It was hoped that nurses for the teams could be recruited in the provinces, since many nurses had been trained under the colonial regime prior to 1946. However, it soon became apparent that the destruction of 14 out of 15 provincial capitals by the rebel forces and the dispersion of the population in 1946 and 1947 had scattered most of the trained personnel. Those nurses who had not joined the Viet Minh had either gone to Hanoi or were already employed in the provincial and district dispensaries. Recruitment was, therefore, necessarily in Hanoi and in the large port city of Haiphong.

Over a period of 6 months, 10 mobile treatment teams were set up in North Vietnam, each comprised of three nurses for making examinations and giving treatment, a clerk assistant for keeping records, and a chauffeur. A regional supervising nurse was also recruited. The nurses, who already had some training and experience in treating trachoma, received 2 weeks of special training at the Ophthalmologic Institute of Hanoi. Delays in developing the program were occasioned by the difficulty of procuring suitable vehicles and by the constantly changing military situation.

Field Operations

The treatment program is carried out in this manner: A village is selected and notified of the impending visit by a mobile team. Since trachoma is highly endemic throughout the delta, selection of a village depends upon security and accessibility. The village officials are advised to have all the people with "sore eyes" gathered at a particular spot where they can be examined and treated. The team, arriving in the morning, examines the patients and commences therapy. The assumption has been made that all cases of "sore eyes" should be treated, with the hope that other conjunctivitides will be amenable to this treatment. After the day's operations, which may mean the examination of 400 to 600 people, the team returns to its base. The village is revisited each day until five treatments have been given to all patients.

After examination, each patient is given a written record of the diagnosis. The record is brought back each day, and the daily treatment recorded on it. The record also has a simple graphic message describing the more common ways of contracting trachoma and how to prevent its spread.

Patients requiring more than simple therapy are advised to continue treatment at the hospitals, district dispensaries, or first aid stations, which have been supplied with aureomycin ointment and treatment schedules. The patient may be advised that surgical consultation is necessary. The Ophthalmologic Institute of Hanoi maintains a mobile surgical unit that travels through the region performing most of the basic ophthalmologic operations.

In 1951, mobile teams treated over 200,000 patients; the permanent medical installations treated about 60,000. From sample surveys it appears that about 90 percent of the patients have a definite diagnosis of trachoma; the other 10 percent have a questionable diagnosis of trachoma or of some other conjunctivitis which is usually susceptible to aureomycin therapy.

An Evaluation of Enteric Parasitology Performed in State Laboratories

By M. M. BROOKE, Sc.D., and RALPH B. HOGAN, M.D., M.P.H.

DURING the past several years the Association of State and Territorial Health Officers, the Conference of State and Provincial Public Health Laboratory Directors, and the National Advisory Health Council have requested the Public Health Service through the Communicable Disease Center to evaluate the proficiency of State public health laboratories in the performance of various diagnostic procedures. The value of this type of program in stimulating improvement of laboratory proficiency has long been demonstrated in the field of syphilis serology (*1*).

In response to these requests, the Communicable Disease Center established a mechanism for evaluating the performance of public health laboratories in the detection and identification of *Endamoeba histolytica* and other intestinal parasites. The objective of the evaluation was to obtain information whereby the State and Territorial laboratories could compare, anonymously, their diagnostic efficiency. With this basic information, deficiencies might be recognized and self-improvement undertaken.

In June 1949, each of the laboratories of State and Territorial health departments were invited to participate in the evaluation. The following 38 State and 4 Territorial laboratories asked to be included in the program:

Arizona, Arkansas, California, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Alaska, Canal Zone, Hawaii, Puerto Rico.

Dr. Brooke and Dr. Hogan are with the laboratory branch of the Communicable Disease Center, Public Health Service, Atlanta, Ga.

The American Society of Tropical Medicine upon request selected three laboratories to serve as referees. The referee laboratories were under the direction of the following authorities:

Dr. William W. Frye, Louisiana State University School of Medicine, New Orleans; Dr. Herbert G. Johnstone, University of California Medical School, San Francisco; and Dr. W. G. Sawitz, Jefferson Medical College, Philadelphia. (Dr. E. C. Faust, Tulane University School of Medicine, New Orleans, was appointed as a substitute referee during 2 months of the evaluation.)

Specimens

The stool specimens used in the evaluation were obtained from various individuals, some harboring no organisms, and others having one or more species of intestinal parasites. All of the specimens were obtained without catharsis or proctoscopy, and 75 percent of them were formed in consistency. They were sent to the participating laboratories as unpreserved stool specimens, formalin-preserved specimens, stool specimens preserved in PVA-fixative (*2*), or as stained fecal smears with or without prior preservation in PVA-fixative. Table 1 presents the number of each type in the 110 specimens distributed, the types in the 98 included in the official key, and those containing *E. histolytica*.

Of the 12 specimens excluded from the evaluation 11 were unpreserved specimens; the other was a stool preserved in PVA-fixative.

Table 1. Types of specimens distributed to participating laboratories and referees during the parasitological evaluation program

Types of specimens	Total number distributed	Number in official key	Number in key with *E. histolytica*
Stools in vials:			
Unpreserved	55	44	3
In formalin	45	45	18
In PVA-fixative	4	3	1
Stained fecal smears	3	3	0
Stained fecal smears in PVA-fixative	3	3	1
Total	110	98	18

The 110 specimens were mailed in 11 equal shipments between July 1949 and June 1950. Various postal methods were used in order that the specimens of a given shipment might arrive at the laboratories on approximately the same date. Of 4,950 specimens shipped, only 7 arrived in a damaged condition. The report form which accompanied the specimens gave information on the type and collection of specimen on one side, and on the other provided space for recording the condition of the specimen upon arrival, the examination techniques used by the participating laboratories, and the names of the organisms found. At the bottom of the report was space for the signature of the director and the name of the participating laboratory. Duplicate report forms were provided in order that the laboratories might maintain independent records. (Copies of the form are available from the authors upon request.)

Each participating laboratory and referee was given a code number, known only to the laboratory involved and to certain individuals within the Communicable Disease Center. When the reports were received at CDC, the code number of the laboratory was written on each side of the report. The signature of the director was then detached and put in a separate file to protect the identity of all records.

Official Key to Identification

Portions of the specimens were sent to the three referees on the same day they were distributed to the participating laboratories. In addition, specimens were mailed to a neighboring State and returned to Atlanta for examination by the parasitology laboratories of the Communicable Disease Center. The three referees and CDC agreed on the presence or absence of *E. histolytica* in 91 specimens. In 7 other specimens, two of the referees and CDC reported the presence of *E. histolytica*. Therefore, in 98 specimens out of 110 distributed, the presence or absence of *E. histolytica* was confirmed by at least two referees and CDC. The 12 other specimens were excluded from the evaluation since only one referee and/or CDC reported the presence of *E. histolytica*.

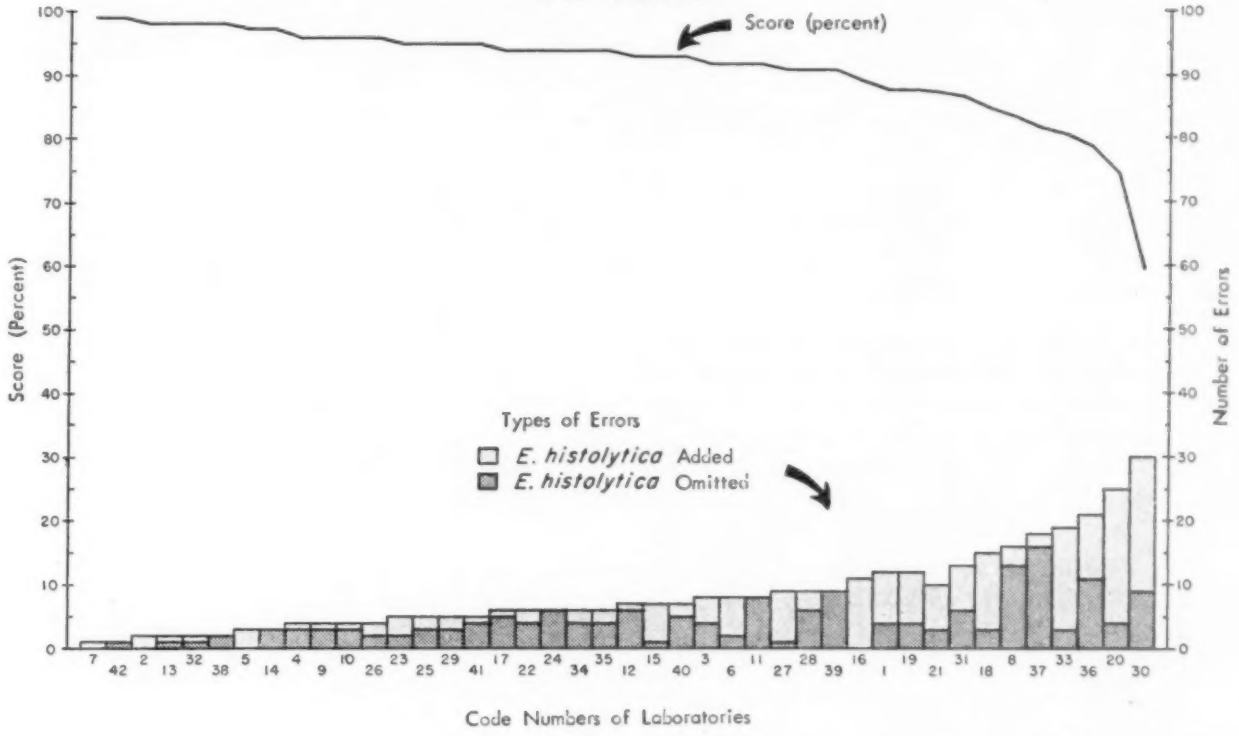
Other organisms were included in the official key to the 98 specimens if at least two of the three referees reported them. If only one referee and/or CDC reported a given organism (exclusive of *E. histolytica*), the organism was placed in the official key in parentheses. In scoring the reports, the participating laboratories were given credit if they found the additional organisms, but they were not penalized for failing to find them. The complete official key to the 98 specimens has been published elsewhere (*3*).

Scoring of Reports

The official key was used to check the errors and omissions of the laboratories in reporting organisms. The scores of the laboratories were determined on the basis of the number of the 98 specimens examined. Three laboratories, 8, 21, and 30, were scored on the basis of 97, 79, and 74 specimens, respectively. For each specimen, the reporting laboratory received two principal scores, "A" and "B."

"*A*" *Score* (*E. histolytica*). In compiling the "A" score, only *E. histolytica* was considered. A unit value was given whenever the presence or absence of *E. histolytica* was reported correctly. The total score of each laboratory was converted to a percentage of the maximum score possible for the number of specimens examined.

Figure 1. Proficiency of participating laboratories in detecting and identifying *E. histolytica* ("A" scores).



"B" Score (all organisms). All organisms, including *E. histolytica*, were considered in determining this score. If the laboratory reported all of the organisms found by two or more referees and did not report any organisms not reported by any referee, it received the maximum score of 10 for the specimen. Misdiagnoses, omissions, and additions of organisms were given numerical values and were subtracted from the maximum possible score for each specimen. The resulting scores were converted to percentages.

All of the information on the specimens (examination procedures, organisms reported, and the scores, as well as the supplementary information mentioned below) was recorded on IBM cards for tabulation.

Supplementary Information

As much information as possible about the participating laboratories was obtained for use in interpreting the results. Information was available from two main sources—a questionnaire distributed during the evaluation program and the records of the laboratory consultation services of the Communicable Disease Center.

The questionnaire on the laboratory examination of stool specimens for parasites requested the participating laboratories to furnish information on the volume of parasitological work, the type and condition of specimens examined, the type and frequency of techniques used, and the technical training of laboratory personnel performing the examinations. Forty-one of the laboratories returned the completed questionnaire. The code numbers of the laboratories were written on the questionnaires in order that they might be filed anonymously after the signatures of the directors had been detached.

Statistical information pertaining to the technician workload and the financial status of the laboratories was obtained from the files of the office of the laboratory consultation services. The information in these files has been collected by CDC staff members or consultants in the course of conducting program reviews of the laboratory facilities of the State departments of health. The information used was collected just prior, during, or immediately following

the period of the evaluation. These program reviews are conducted under the auspices of the respective Federal Security Agency Regional Offices as assignments from the Division of State Grants of the Public Health Service. Not all of the participating laboratories had had program reviews during the specified period. However, information was available on 38 of the participating laboratories.

Identification of *E. histolytica*

The laboratory scores for reporting correctly the presence or absence of *E. histolytica* in the 98 specimens ranged between 59.5 and 99.0 percent (fig. 1). All but 12 of the 42 participating laboratories made a score above 90 percent. Since in this study emphasis was placed upon *E. histolytica*, the "A" scores of the participating laboratories determined the official rank order for the parasitological evaluation (table 2).

There were 18 instances when *E. histolytica* was known to be present in the 98 specimens according to the examination of the referee laboratories. Four of the participating laboratories found all 18, while other laboratories missed from 1 to 16 of these positives. On an average, *E. histolytica* was missed 4.1 times by the laboratories.

In 80 specimens *E. histolytica* was reported absent by the referee laboratories. Six of the participating laboratories did not report any false positive diagnoses of *E. histolytica;* the remaining laboratories reported it to be present in from 1 to 21 of the 80 specimens. On an average, the 42 laboratories added *E. histolytica* 4.4 times when it was known to be absent according to the reports of the referees.

Table 2. Official rank order of participating laboratories as determined by scores made in detecting and identifying *E. histolytica* ("A" score) from 98 identical specimens, except as indicated

Official rank order	Laboratory code No.	Score (percent)	Number and type of errors	
			E. histolytica added	*E. histolytica* omitted
1	7	99	1	0
1	42	99	0	1
3	2	98	2	0
3	13	98	1	1
3	32	98	1	1
3	38	98	0	2
7	5	96.9	3	0
7	14	96.9	0	3
9	4	95.9	1	3
9	9	95.9	1	3
9	10	95.9	1	3
9	26	95.9	2	2
13	23	94.9	3	2
13	25	94.9	2	3
13	29	94.9	2	3
13	41	94.9	1	4
17	17	93.9	1	5
17	22	93.9	2	4
17	24	93.9	0	6
17	34	93.9	2	4
17	35	93.9	2	4
22	12	92.9	1	6
22	15	92.9	6	1
22	40	92.9	2	5
25	3	91.8	4	4
25	6	91.8	6	2
25	11	91.8	0	8
28	27	90.8	8	1
28	28	90.8	3	6
28	39	90.8	0	9
31	16	88.8	11	0
32	1	87.8	8	4
32	19	87.8	8	4
34 [1]	21	87.3	7	3
35	31	86.7	7	6
36	18	84.7	12	3
37 [2]	8	83.5	3	13
38	37	81.6	2	16
39	33	80.6	16	3
40	36	78.6	10	11
41	20	74.5	21	4
42 [3]	30	59.5	21	9

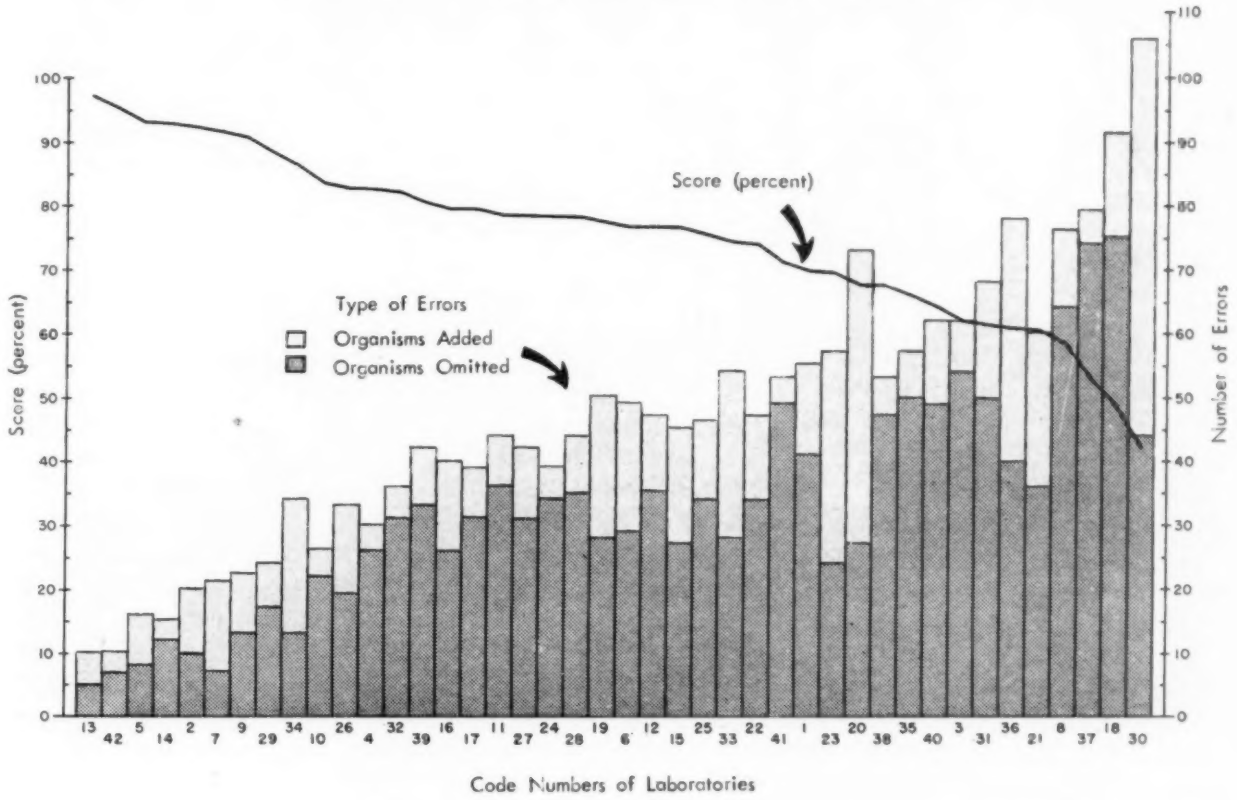
[1] 79 specimens. [2] 97 specimens. [3] 74 specimens.

Identification of All Species

In addition to *E. histolytica*, 14 other species of organisms were found in the 98 specimens by the referees and CDC (table 3). Of the 98 specimens, 74 were reported positive by the referees and contained a total of 149 species infections. No organisms were found by the referees in 24 specimens.

As described previously, the "B" scores were obtained by considering all of the organisms reported to be present. The "B" scores of the participating laboratories ranged between 42.0 and 97.1 percent (fig. 2). In 600 instances organisms were reported by the participating laboratories when they were not recorded on the official key. The number of added organisms ranged from 3 to 62, with an average of 14.3 per laboratory.

Figure 2. Proficiency of participating laboratories in detecting and identifying all species of organisms reported to be present by referees ("B" scores).


Score (percent)
Type of Errors
Organisms Added
Organisms Omitted
Score (percent)
Number of Errors
Code Numbers of Laboratories
13 42 5 14 2 7 9 29 34 10 26 4 32 39 16 17 11 27 24 28 19 6 12 15 25 33 22 41 1 23 20 38 35 40 3 31 36 21 8 37 18 30

On 1,355 occasions the participating laboratories missed organisms reported present by two or more referees. The number of missed organisms ranged from 5 to 75, with an average of 32.3 per laboratory. The combined number of additions and omissions for the participating laboratories amounted to 1,955 errors, ranging from 10 to 106. The average was 46.5 per laboratory.

Factors Relating to "A" Scores

Although the scores of certain laboratories might indicate that improvement is needed, these scores furnish no information as to possible underlying reasons for the differences in proficiency. Such factors as type of specimen examined, procedures used, training and experience of the technicians, and financial status of the participating laboratories were analyzed. Whenever statistical significance was found (P approximately equal to or less than .01), it is so stated. Statistical analysis was made difficult by the small numbers and the incomplete data in some instances.

For the sake of discussion, the laboratories have been divided into three groups according to their *E. histolytica* scores in the official rank order (table 2). The upper group consists of 12 laboratories with scores above 95 percent; the middle group, of 18 laboratories with scores between 90 and 95 percent; and the lower group, of 12 laboratories with scores below 90 percent.

Type of Specimen Examined

The 98 specimens examined by the participating laboratories fall into three general types: (*a*) unpreserved stools, 44; (*b*) stools preserved in formalin, 45; and (*c*) specimens requiring examination from permanently stained fecal smears, 9 (including 3 stained fecal smears and 6 stools preserved in PVA-fixative).

Table 4 presents the "A" scores made on the three types of specimens by the upper, middle, and lower groups of laboratories. There was

Table 3. Number of times each intestinal organism was present in 74 of the evaluation specimens according to referee reports [1]

Organism	Found by two or three referees	Found only by one referee and/or by CDC	Total
Endamoeba histolytica	18	0	18
Endamoeba coli	28	9	37
Endolimax nana	21	15	36
Iodamoeba butschlii	6	0	6
Dientamoeba fragilis	1	0	1
Chilomastix mesnili	6	5	11
Giardia lamblia	3	4	7
Trichomonas hominis	0	1	1
Trichuris trichiura	7	8	15
Ascaris lumbricoides	2	2	4
Hookworm	4	3	7
Strongyloides stercoralis	0	1	1
Schistosoma mansoni	0	1	1
Heterodera species	0	3	3
Tyroglyphus species	0	1	1
Total	96	53	149

[1] No organisms found in 24 specimens.

little or no difference between the scores on the unpreserved and the formalinized specimens for each of the three groups. However, all three groups made significantly lower scores with the stained smears.

Number of Tests Performed

Although a few of the laboratories performed routinely only one test on each specimen, the majority varied the number, apparently depending upon the difficulty and the type of the specimen. Including the specimens which were submitted as stained smears, from one to a half-dozen techniques were performed on each specimen, with an average of slightly less than two tests per specimen. On an average, the upper, middle, and lower groups performed, respectively, 185, 166, and 165 tests in the examination of the 44 unpreserved and the 45 formalinized specimens (table 5). No upper group laboratory did less than 100 tests.

Type of Procedures Used

The four major types of procedures used by the laboratories in the examination of the 98 specimens were in order of frequency: temporary wet mounts, concentration techniques, permanent stains, and cultivation (table 6). All four types of procedures could be used on the unpreserved specimens but not on the other types of specimens distributed. The stained fecal smears and the specimens preserved in PVA-fixative could be examined effectively only from permanently stained preparations. The formalinized specimens could not be cultured. Permanently stained smears could not be prepared as successfully from formalinized as from unpreserved specimens. Nevertheless, the frequency of use of the four major procedures on the unpreserved specimens (temporary mounts, 41.8 percent; concentration techniques, 44.7 percent; permanent stains, 11.1 percent; cultivation, 2.4 percent) does not differ significantly from the frequencies for all specimens (table 6).

Temporary wet mounts employing saline, iodine, and other solutions were used by 41 of the 42 laboratories, and one or more concentration procedures were used by 38 laboratories. Of the various concentration procedures, the zinc sulfate technique was utilized approximately three times as frequently as any of the others (table 6). The brine-flotation technique was used rarely. Sedimentation and the acid-ether techniques (or modifications) ac-

Table 4. Average *E. histolytica* (or "A") scores made in examination of different types of specimens by upper, middle, and lower groups of laboratories in official rank order

Official rank order	Average *E. histolytica* scores (percent)			
	44 unpreserved specimens	45 formalinized specimens	9 stained fecal smears	98 specimens of all types
Upper group—12 laboratories	98. 1	97. 4	92. 6	97. 3
Middle group—18 laboratories	93. 3	94. 4	85. 2	93. 1
Lower group [1]—12 laboratories	85. 8	81. 8	66. 7	82. 2
All 42 laboratories	92. 6	89. 6	82. 4	91. 3

[1] Lower group did not report examination of 22 unpreserved specimens, 13 formalinized specimens, and 9 specimens requiring examination from stained smears, 44 in all.

Table 5. Number of tests performed on 44 unpreserved and 45 formalinized specimens by laboratories in the upper, middle, and lower groups

Official rank order	Percentage of laboratories in each group performing			Average number tests per laboratory
	100 tests or less	101 to 200 tests	201 tests or more	
Upper group—12 laboratories	0	58	42	185
Middle group—18 laboratories	17	66	17	166
Lower group—12 laboratories	25	50	25	[1] 165
All 42 laboratories	14	60	26	172

[1] Lower group did not report examination of 22 unpreserved and 13 formalinized specimens.

counted for slightly more than one-third of the concentrations performed. Several of the laboratories indicated that they employed the formalin-ether sedimentation technique.

Twenty-one of the laboratories prepared permanently stained smears in the examination of the unpreserved and formalinized specimens. Probably owing to the difficulty of staining formalinized specimens, the procedure was used approximately one-half as frequently on that type of specimen. According to the reports of the laboratories, several procedures were used in preparing the permanently stained smears. The Heidenhain iron-alum hematoxylin technique was used in over 50 percent of the occasions. In 25 percent, the technique was designated simply as a modified Heidenhain procedure. Of the remaining instances, where the modifications were specified, Tompkins and Miller's technique was used 87 times, Goldman's 71, Brown's 66, and Kessel's 21.

Only three laboratories used cultivation in the examination of the unpreserved specimens. The media used were Cleveland and Collier's with or without the addition of streptomycin, and modified Boeck and Drbohlav's egg slant or modified Loeffler's blood serum with fluid overlays.

Table 7 indicates the percentages of laboratories in the upper, middle, and lower groups which employed the four major types of procedures routinely or frequently in the examination of the specimens. Since 9 of the specimens could be examined only from permanently stained smears, they have been excluded from this tabulation. Only the 44 unpreserved specimens were considered in determining the frequency of use of permanently stained smears and cultivation since the techniques were not fully applicable to the formalinized specimens.

A large proportion of the laboratories in each of the three groups frequently used temporary wet mounts and concentration procedures. Permanently stained smears and cultivation were used more extensively by the lower group than by the two higher groups. However, although only one laboratory (8 percent) in the upper group used either of these techniques frequently, six (50 percent) used stained smears and one (8 percent) used cultivation as supplementary procedures.

The most common combination of any two procedures was that of wet mounts and concentration techniques. This combination was used by 28 of the laboratories. Only one laboratory in each of the upper two groups employed three procedures routinely, while four laboratories did so in the lower group.

Experience and Training

According to the returned questionnaires, the participating laboratories examine from 100 to 200,000 stool specimens for intestinal parasites each year. The volume of this type of

Table 6. Types of procedures and frequency of use by participating laboratories in examination of the evaluation specimens

Types of procedures	Number times used	Percent
Temporary wet mounts	3, 792	44. 0
Concentration techniques	3, 717	43. 2
Zinc-sulfate flotation	*2, 566*	*29. 9*
Sedimentation	*909*	*10. 5*
Brine flotation	*71*	*. 8*
Acid-ether (or modification)	*171*	*2. 0*
Permanent stains	980	11. 3
Cultivation	129	1. 5
Total	8, 618	100. 0

Table 7. Percentage of laboratories in upper, middle, and lower groups employing four types of procedures routinely (or frequently) in examination of evaluation specimens

Official rank order	Percentage of laboratories in each group employing techniques routinely (or frequently)			
	Temporary mounts [1]	Concentration technique [1]	Permanent stain [2]	Cultivation [2]
Upper group—12 laboratories	100	92	8	0
Middle group—18 laboratories	100	61	11	6
Lower group—12 laboratories	83	67	42	8
All 42 laboratories	95	71	19	5

[1] Performed on 89 unpreserved and formalinized specimens.
[2] Performed on 44 unpreserved specimens.

work can be taken as an indication of the parasitological experience of the technicians. Table 8 presents information on the number of specimens examined by the laboratories in the three "A" score groups. It should be noted that the upper group included the largest percentage of the laboratories examining more than 1,000 specimens each per annum.

The thoroughness of the routine parasitological examinations is also indicative of experience. Ten laboratories in the upper group, eight in the middle group, and six in the lower group, use routinely two or more techniques in the examination of the stool specimens that are received. Since a laboratory receiving only a few specimens a year may employ several procedures on each specimen, a better index of experience is perhaps obtained if the thoroughness of examination and volume of work are combined. Of the laboratories in the upper, middle, and lower groups which examine more than 1,000 specimens each year, a significantly greater number in the upper group use multiple techniques routinely (table 8).

In the questionnaire, the laboratories were requested to give information on the training of the personnel performing the parasitological examinations. The type of training reported was so varied that it was not possible to analyze all of the information given. However, it is possible to correlate the data in reference to specific training in the laboratory diagnosis of parasitic diseases. Twenty-six of the laboratories reported that a total of 41 individuals examining stool specimens in their laboratories had attended refresher courses in this specific field. Eighty-three percent of the laboratories in the upper group, 65 percent in the middle, and 42 percent in the lower group had individuals who had attended the courses (table 8). The average number of trained persons per laboratory was greatest in the upper group.

Population Served and Workload

In general, the more populous States were represented by the laboratories in the upper group of the "A" scores (table 9). The average population represented by this group was over a million and a half greater than that of either of the lower two groups. Furthermore, rather large proportions of the States represented by the laboratories in the lower two groups had populations of less than a million each.

The number of tests performed by a technician per annum can be considered as indicative of the work load. Information which was available on 37 laboratories is presented in table 9. In the individual laboratories, syphilis serology accounted for 40 to 89 percent of the tests performed, with an over-all average of 71 percent. Although there are inequalities due to the difference in volume of syphilis serology, and to the variety of other tests performed, they tend to average out within the different groups of laboratories. The average number of tests was the lowest in the upper group. In 25 percent of the laboratories in the upper group, the workload was less than 10,000 tests per technician.

Financial Status of the Laboratories

Information on financial status was available on 38 of the participating laboratories. The data indicated a significant trend in the relationship between higher total budgets and the greater proficiency of the laboratories in the upper group (table 10). The average budget

Table 8. Number of laboratories examining over 1,000 stool specimens per annum and percentage of laboratories with personnel trained in laboratory diagnosis of parasitic diseases

Official rank order	Parasitological work per annum			Laboratories with personnel trained in laboratory diagnosis of parasitic diseases	
	Laboratories examining over 1,000 specimens		Number of laboratories using multiple techniques routinely	Percent	Average number persons per laboratory
	Number	Percent			
Upper group—12 laboratories	8	67	7	83	1.5
Middle group—17 laboratories [1]	7	41	1	65	.9
Lower group—12 laboratories	3	25	0	42	.6
All 41 laboratories	18	44	8	63	1.0

[1] 1 laboratory did not return questionnaire.

for the upper group was over $280,000 greater than that for either of the other two groups. Fifty percent of the laboratories in this group had annual budgets of more than $301,000. The average per capita expenditure was almost twice as much for the upper group as for either of the other two groups (table 10). This trend of higher total budgets among laboratories in the upper score groups is significant.

Discussion

The *E. histolytica* scores of the 42 laboratories in the evaluation do not present a normal curve of distribution. Thirty of the laboratories made scores greater than 90 percent. In other words, this evaluation did not succeed in separating the really superior laboratories from the others. The inclusion of more difficult specimens and a greater number of positive *E. histolytica* specimens might have resulted in a better separation of the laboratories. However, 18 of the 98 specimens were positive for *E. histolytica*, which represents almost twice the generally agreed upon incidence of this parasite in the United States. Furthermore, 12 of the specimens distributed were more difficult, but were excluded from the evaluation for lack of agreement by the referees. With the same percentage of positives and the same degree of difficulty, a better separation of the laboratories probably would have been obtained if it had been feasible to include a much greater number of specimens in the evaluation.

Despite the absence of clear-cut separation of the laboratories, it is interesting to observe the relationship between favorable laboratory conditions and the greater proficiency of the laboratories in the upper group of this evaluation. Although statistical significance was not found in many of these relationships, the consistent trends in favor of the more proficient laboratories are worthy of note, and perhaps are suggestive of possible correlations. A discussion of these conditions may be of assistance to laboratories which undertake to improve their proficiency in view of the results of this evaluation.

The importance of performing multiple tests is suggested by the information on the number of tests used by the participating laboratories in their examinations of the evaluation specimens. On the whole, the more successful laboratories performed somewhat greater numbers of tests. Practically all of the laboratories in the upper group performed two or more tests on each specimen received. However, sheer numbers of tests did not appear to insure greater proficiency since one-fourth of the laboratories in the lower group performed more than two tests on each specimen. The selection of appropriate procedures was probably of greater importance.

The laboratories in the upper group placed greatest emphasis upon the wet mounts and concentration techniques and generally used permanently stained smears and cultivation methods only as supplementary procedures. On

Table 9. Proficiency of laboratories in relation to population of States or Territories and the work load of technicians

Official rank order	Population of States and Territories [1]				Workload in tests per annum per technician [2]			
	Percentage in each group with			Average (millions)	Percentage in each group performing			Average (thousands)
	1 million or less	1 to 5 million	Over 5 million		10 thousand or less	10.1 to 20 thousand	20.1 thousand or more	
Upper group—12 laboratories	8	59	33	4.1	25	58	17	14.5
Middle group—18 laboratories	33	61	6	2.1	0	33	67	22.2
Lower group—12 laboratories	42	50	8	2.5	10	60	30	21.4
All 42 laboratories	29	57	14	2.8	11	49	40	19.5

[1] Information from the 1950 census.
[2] Information available on 12, 15, and 10 laboratories, respectively, for the upper, middle, and lower groups, 37 in all.

the other hand, several of the laboratories in the lower groups made extensive use of a variety of techniques. Theoretically, the greater the variety of procedures performed, the greater should be the number of infections found. But in some instances it appeared as though certain laboratories attempted to compensate for a lack of knowledge of morphological characteristics by performing several techniques, including the more intricate procedures of staining and cultivation.

Although permanently stained smears were prepared routinely by only one laboratory in the upper group, six others used the technique occasionally. This practice of the more proficient laboratories would tend to emphasize the importance of this type of preparation, particularly as a supplementary procedure for difficult specimens. It probably reflects the good practice of staining the pathogenic protozoa and suspicious organisms in order to maintain a permanent file and to seek collaboration from reference diagnostic centers when desired.

On the whole, the participating laboratories

Table 10. Proficiency of 38 laboratories in relation to financial status, upper, middle, and lower groups [1]

Official rank order	Annual budget of laboratories (thousands)				Per capita expenditure for laboratory services (cents)			
	Percentage in each group with—			Average (thousands)	Percentage in each group with—			Average (cents)
	$200 or less	$201 to $300	$301 or more		5.0 or less	5.1 to 10.0	10.1 or more	
Upper group—12 laboratories	25	25	50	472	16	42	42	11.7
Middle group—16 laboratories	81	6	13	186	44	37	19	6.7
Lower group—10 laboratories	80	20	0	119	40	50	10	6.5
38 laboratories	63	16	21	259	34	42	24	8.3

[1] No information available on 4 laboratories.

made significantly lower scores on those specimens which required examination of stained smears than on the unpreserved and formalin-preserved specimens. This probably indicated unfamiliarity with stained smears. On the other specimens which could be examined by permanently stained smears if desired, only one-half of the laboratories employed the technique. From the questionnaire and other information, it is known that many of the public health laboratories of this country seldom or never use the permanently stained smear in the examination of diagnostic specimens that they receive. Although in some laboratories the technique may be too expensive to be employed routinely on all specimens, it would certainly be advisable for all laboratories to be equipped to prepare permanently stained smears when needed as a supplementary procedure and in the examination of certain types of specimens (for example, those preserved in PVA-fixative).

With current procedures, cultivation for intestinal protozoa is not very applicable to public health laboratories, since they generally receive mailed-in specimens which may be several days old. This probably accounts for the fact that only three participating laboratories used the technique during the evaluation.

Probably of greater importance than technical procedures was the knowledge of the parasites possessed by the individuals who performed the examinations. This is likely to be true more often in parasitology than in other types of laboratory work. The techniques available to the technician do not give objective "yes" or "no' results which can be easily read, such as the presence or absence of hemolysis, a precipitate, acid, or gas. Regardless of the parasitological technique used, the laboratory report of *E. histolytica* must be based on the morphological identification of the organisms recovered. The mere finding of amebas is not sufficient since there are other species that might be recovered by the same technique. Unfortunately, the ability to differentiate the intestinal amebas cannot be learned easily from textbooks. It requires intensive training under a competent parasitologist and months of supervised experience before a person can reliably differentiate the amebas. Furthermore, the diagnostic ability is not a skill that can be maintained without constant practice. The results of this evaluation tend to confirm the importance of experience and training since in general the laboratories in the upper group of the *E. histolytica* scores perform greater volumes of parasitological work each year and have more individuals who have received special training in this specialty.

As might be expected, there appears to have been a financial relationship with the results of this evaluation. In general, the laboratories in the upper group were significantly better financed than those in the lower two groups Since the laboratories in this evaluation are dependent upon public funds, it is only natural to find a larger number of the more populous States in the upper group. In addition, this group of laboratories has a per capita expenditure almost double that of each of the lower groups. Therefore, these laboratories apparently can afford to have more technicans for the volume of work performed, use a greater variety of tests routinely, and send more of their technicians to refresher laboratory training courses. Nevertheless, wealth alone is not sufficient as evidenced by the fact that several wealthy laboratories in heavily populated States made relatively poor scores. The results of this evaluation would suggest that in seeking to improve laboratory performance in intestinal parasitology, primary consideration should be given to wise selection of available techniques and the thorough training of technical workers.

Summary

1. Forty-two laboratories participated in the first evaluation of parasitology performed in State and Territorial health laboratories. The study involved the examination of 98 stool specimens distributed by the Communicable Disease Center as unpreserved specimens (44), formalinized specimens (45), stained fecal smears (6), and specimens preserved in PVA-fixative (3).

2. The scores made by the laboratories in determining the presence or absence of *E. histolytica* ranged between 59.5 and 99.0 percent, with all but 12 of the laboratories making scores above 90.0 percent. The laboratories were also scored in reference to reporting other intestinal

parasites determined to be present by referee laboratories.

3. In order to furnish more information which might serve as a basis for eliminating deficiencies, the relative proficiency of the laboratories is discussed in relationship to the type of specimens examined, the technical procedures used, the training and experience of the technicians, and the financial status of the laboratories.

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REFERENCES

(1) Bauer, T. J.: Serologic laboratory evaluation. Editorial. J. Ven. Dis. Inform. 32: 27 (1951).

(2) Brooke, M. M., and Goldman, M.: Polyvinyl alcohol-fixative as a preservative and adhesive for protozoa in dysenteric stools and other liquid materials. J. Lab. and Clin. Med. 34: 1554–1560 (1949).

(3) Report from the Communicable Disease Center Laboratory Branch. Pub. Health Lab. 8: 153–158 (1950).

Manpower Policy

To help meet the problem of critical manpower shortages, the Office of Defense Mobilization in September outlined an information and guidance program for employers, educational institutions, professional associations, and Government agencies concerned with the training and utilization of scientists and engineers.

The Office of Defense Mobilization statement was published as ODM Defense Manpower Policy No. 8 and appeared in the Federal Register on September 6, 1952. The statement included a discussion of the problem as well as a series of recommendations which are applicable to professional and technical personnel employed by public health agencies—physicians, dentists, and nurses as well as scientists and engineers. Employers are urged to:

Review and reevaluate the duties, responsibilities, training, and experience requirements of technical positions to determine the minimum qualification levels required for each position, and to develop research leaders and administrators;

Cooperate with educational institutions, in the development of on- and off-the-job training programs for technical personnel and in the selection and training of subprofessional personnel to relieve scientists and engineers of routine duties;

Assure salaries that are commensurate with the skills and contributions of professional technicians;

Consult with public employment offices to avoid recruitment activities disruptive to high-urgency defense work, and to cooperate with employer associations in implementing industry-wide measures to alleviate the effects of technical personnel shortages and in expanding scholarship programs for promising students who otherwise might be unable to complete their education;

Provide comprehensive employment information to local Selective Service boards, and appropriate military authorities, for their use in classification of registered employees engaged in essential scientific activities and in determining eligibility for delay in recall to active duty for essential employees so subject;

Utilize fully women and members of minorities with scientific training;

Cooperate with public and private agencies in determining current and long-range requirements and resources of scientists and engineers and in developing relevant information regarding employment, such as salaries, hours, mobility, and working conditions.

Usefulness of Communicable Disease Reports

By IDA L. SHERMAN, M.S., and ALEXANDER D. LANGMUIR, M.D., M.P.H.

IN ANY discussion of routine morbidity reporting there is always the casual observer of morbidity data who proclaims, "I don't know anything about reporting procedures, but the data are no good!" The question may be raised, "No good for what?"

Routine morbidity reporting of communicable diseases has been maligned by the perfectionist who calls for the same precision in these data as in those derived from an experiment in which the variables can be controlled. Even with the problem of bias removed in an experiment and despite the investigator's most careful efforts, he will get variations in his results that, for want of more precise knowledge, he labels experimental error. And with everything under rigid control, the data are still imperfect.

Every measurement is an imperfect datum, and every investigator has the problem of judging the extent of error and of keeping the interpretation within these limits. Interpretation of morbidity data must be guided by use of collateral evidence obtained from field investigations and epidemiological studies.

Our system of notification of individual case reports is a haphazard complex of interdependence, cooperation, and good will among physicians, nurses, county and State health officers, school teachers, sanitarians, laboratory technicians, secretaries, and clerks. It is a rambling system with variations as numerous as the individual diseases for which reports are requested, and as numerous as the interests and individual traits of the administrative health officers, epidemiologists, and statisticians in the 48 States and the several Federal agencies concerned with the data. It is a system that depends on persuasion, education, and, in some instances, alarm. And the variables cannot be eliminated by regimentation and fiat.

In spite of the inaccuracies of the resultant data, morbidity reports are indispensable for immediate recognition of a disease situation which requires public health action. They are time-tested in determining areas and trends of disease; and they are important in administrative planning of long-range programs and in providing the raw material for epidemiological research. These broad objectives of the notifiable disease system, while well known, are often not considered adequately.

Essential for Public Health Action

The notification system is essential for the control of the rare and serious disease. Immediate knowledge of a case is needed for the epidemiological follow-up that will protect the community. For such diseases as smallpox and plague, a report of when and where a particular case develops is of paramount importance. And the system has proved effective. No community has been caught wholly unaware in recent years in an outbreak of these rare diseases. But the possibility of an outbreak cannot be disregarded.

The diseases listed in the international quarantine regulations, while rare in this country,

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are problems of concern throughout the world, especially since modern transportation facilities provide an opportunity for transmission of disease from one country to another in a few hours or days. According to the 6-month report issued by the Public Health Service Division of Foreign Quarantine on world prevalence of quarantinable diseases for the period ended December 31, 1951, plague is suspected in all South American, African, and Asian ports and in the Mediterranean ports of Spain, France, Greece, Italy, Malta, and Turkey. All countries are considered potentially infected with smallpox with the exception of Canada, the islands of St. Pierre and Miquelon, Iceland, Greenland, the west coast of Lower California, Cuba and the Bahama Islands, the Canal Zone, the Bermuda Islands, Aruba, Curacao, and ports under the control of the United States. Cholera is reported by Burma, India, and East Pakistan. Yellow fever is reported in Africa, jungle yellow fever in South American areas, and epidemic typhus in Afghanistan, Ethiopia, Yugoslavia, and Ecuador, with some few cases reported from other areas in South America and the Near East.

The protection of our communities depends on immediate notification of the occurrence of these diseases so that, once a diagnosis is made, proper measures may be instituted. The mass immunization against smallpox in New York City a few years ago is a case in point (*7*). For 20 years the city had not had an outbreak, and universal vaccination had been a standard recommendation for much longer. But in March 1947, a merchant living in Mexico, who traveled to New York City by bus, fell ill, was admitted to a city hospital, and died within a few days. The diagnosis was smallpox. Twelve cases developed from the initial case, two ending in death. The duration of immunity induced by vaccination varies considerably so that a vaccinated community may not be presumed to be an immune one. In this outbreak, the merchant had been successfully vaccinated in childhood. The introduction of smallpox into a community such as New York City could engender a sizable epidemic. As a result of prompt notification of the smallpox outbreak and efficient epidemiological follow-up, the decision was reached to undertake immunization or re-immunization of the New York City population. In addition the Public Health Service traced the route of the bus to determine whether additional foci of infection had developed in other States. Certainly, individual case reports at such a time are indispensable.

Leprosy has world-wide distribution, and there are areas in the United States where the disease has been recognized over a period of years. The greatest number of persons with leprosy admitted to the National Leprosarium at Carville, La., resided in Louisiana, Texas, and California at the time of admission. In those areas, the physicians frequently consult local public health authorities for diagnosis and advice on subsequent treatment or isolation. Knowledge of these cases is gained from two sources: notification to public health authorities by the physician and subsequent systematic clinical study of contacts. The control of this disease depends on continued notifications to health officials of individual cases as they are recognized.

Location of Disease Areas

For diseases of relatively low incidence, reported case data provide information for location of pinpoint areas where further epidemiological understanding of the disease may be gained through field investigation. During the thirties, outbreaks of psittacosis, transmitted for the most part by psittacine, gallinaceous, and columbian birds, resulted in quarantine regulations affecting the importation and transportation of such birds as parrots and parakeets. After the disease incidence had been low for many years, the quarantine regulations were eased in December 1951 permitting freer transportation of psittacine birds from State to State. The change in regulations removed many of the "black market" aspects of traffic in these birds, and epidemiological follow-up was facilitated.

Early in January 1952, the National Institutes of Health of the Public Health Service reported the virus had been isolated from a bird that had died in Florida. Then followed reports of human cases from different parts of the country. What did the widely scattered and apparently sporadic cases of psittacosis

Figure 1. Reported human psittacosis cases in relation to avian source, 1952.

mean, if anything? By piecing together the evidence gained from the description of psittacosis cases published as epidemic reports with some of the early findings made by an epidemic intelligence officer of the Public Health Service, the data became meaningful. Figure 1 indicates schematically how birds transported to Connecticut and to Minnesota from an infected Florida aviary were incriminated in human cases of psittacosis. A case developed in a Colorado visitor to the Minnesota family owning the infected parakeet. Birds grown locally in Chicago were incriminated in Chicago cases and in a Connecticut case. A Washington, D. C., case was attributed to a bird grown in Maryland where another infected bird was discovered. The outbreak in Texas was among turkey pickers, and the Kentucky cases were attributed to infected birds acquired in "neighboring States." Further epidemiological follow-up revealed the presence of infected birds with no associated human cases, and some additional human cases were uncovered which could not be traced to specific sources of infection.

Until about 1930, Rocky Mountain spotted fever was recognized only in the western portion of the United States. Since that time, increasing numbers of cases have been reported from the eastern portion of the United States, and entomologists, particularly, have been concerned with the distribution and natural history of ticks that carry the rickettsiae. Figure 2 shows the distribution of reported cases of Rocky Mountain spotted fever, by county, for the years 1945–50. The concentration of the disease along the eastern seaboard is apparent and the value of a simple spot map of reported cases is obvious. Entomologists and epidemiologists find such maps useful in selecting areas for study.

Murine typhus fever has been a disease of public health importance in this country for almost two decades. It has some characteristics similar to Rocky Mountain spotted fever, and there is possibility of error in differentiating the two diseases. But the differential diagnosis is aided by recognition of the distinct differences in their geographic distribution. Rocky

Mountain spotted fever is concentrated along the eastern seaboard and western sections of the country. Typhus, however, is concentrated in the Gulf States. Although there may be errors in the reports of the two diseases, especially in the overlapping fringe areas, the salient fact of two distinct areas of major concentration is provided by reported morbidity data.

From 1932 to 1940, murine typhus cases for the United States and for the 10 southern States from which the great majority was reported showed a general upward trend which may be attributed to better recognition of the disease rather than to increased incidence.

After 1940 there was a sharp rise in the number of cases reported in the United States. Typhus distribution in 1944 suggested increased incidence in the endemic area rather than a marked extension of the disease into new areas. In corroboration, during this period larger numbers of typhus cases were recognized in the teaching hospitals of the endemic area. And in field studies, cases confirmed by laboratories exceeded those reported to local health authorities. The number of reported cases began declining in 1946, and these figures are in line with field evidence. The decline since 1948, however, is difficult to interpret since, with the introduction and wide use of antibiotics, recognition of the disease has been obscured, but the 1951 distribution of residual murine typhus is in the same general areas as during the period of its highest incidence (fig. 3).

Determination of Trends

Diphtheria is such an old story that we look at the declining rate of incidence with a feeling of satisfaction and complacency. Looking at the reported case data, we find that the morbidity rate for the United States dropped from 30.8 per 100,000 in 1935 to a rate of 2.6 in 1951. State rates for 1951 show that this is not the complete story on the reduction of the disease in the United States (fig. 4). Although the over-all rate was 2.6, a group of southern and western States had rates twice this figure. Whether these rates reflect differences in reporting procedures, immunization practices,

Figure 2. Rocky Mountain spotted fever cases, 1945–50.

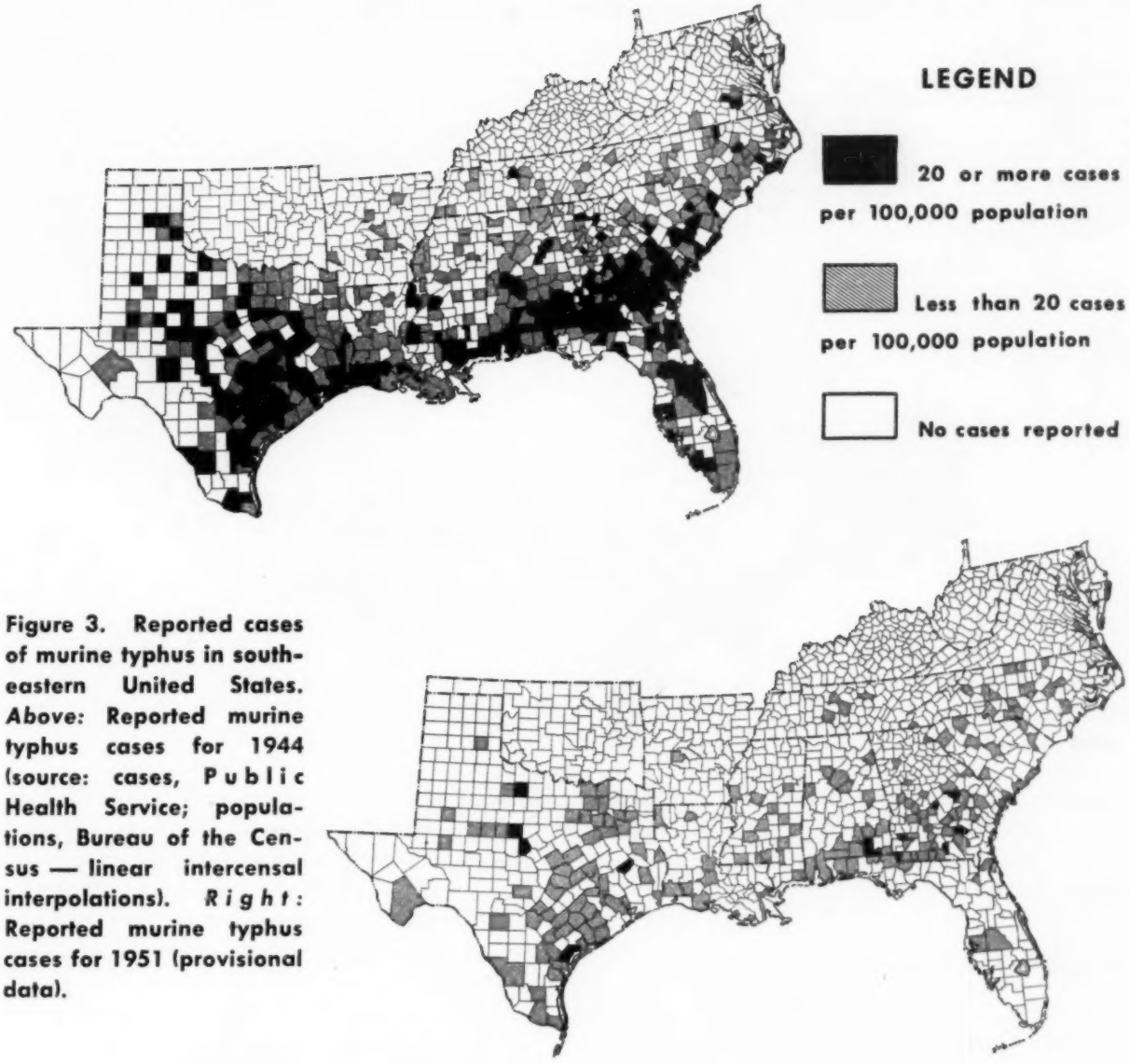

Figure 3. Reported cases of murine typhus in southeastern United States. *Above:* Reported murine typhus cases for 1944 (source: cases, Public Health Service; populations, Bureau of the Census — linear intercensal interpolations). *Right:* Reported murine typhus cases for 1951 (provisional data).

population differences, or peculiarities of various strains of diphtheria is a problem for investigation, but specific morbidity rates enable recognition of a problem and provide the point of departure. The occurrence of diphtheria challenges our health services to locate and eliminate the residue of diphtheria in this country.

In England and Wales, the diphtheria morbidity rate in the 1930's was well over 100 cases per 100,000. In 1940, the English (*5*) began an intensive immunization program with the goal of immunizing at least 75 percent of the children before they reached their first birthday. A dramatic drop in reported cases followed (fig. 5). From 1944, the English have been able to show two sets of data, original, or preliminary, and final notifications. The latter include corrections resulting from amendments of diagnosis made either by notifying practitioners or by the infectious disease hospitals. Conclusions based on either set of data indicate that incidence of the disease is reaching a low point and that within the short span of 10 years rapid progress has been made toward its eventual eradication. In fact, the British in the March 1952 issue of their *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service* state, "the situation is now being reached . . . where the eradication of diphtheria as an indigenous disease in this

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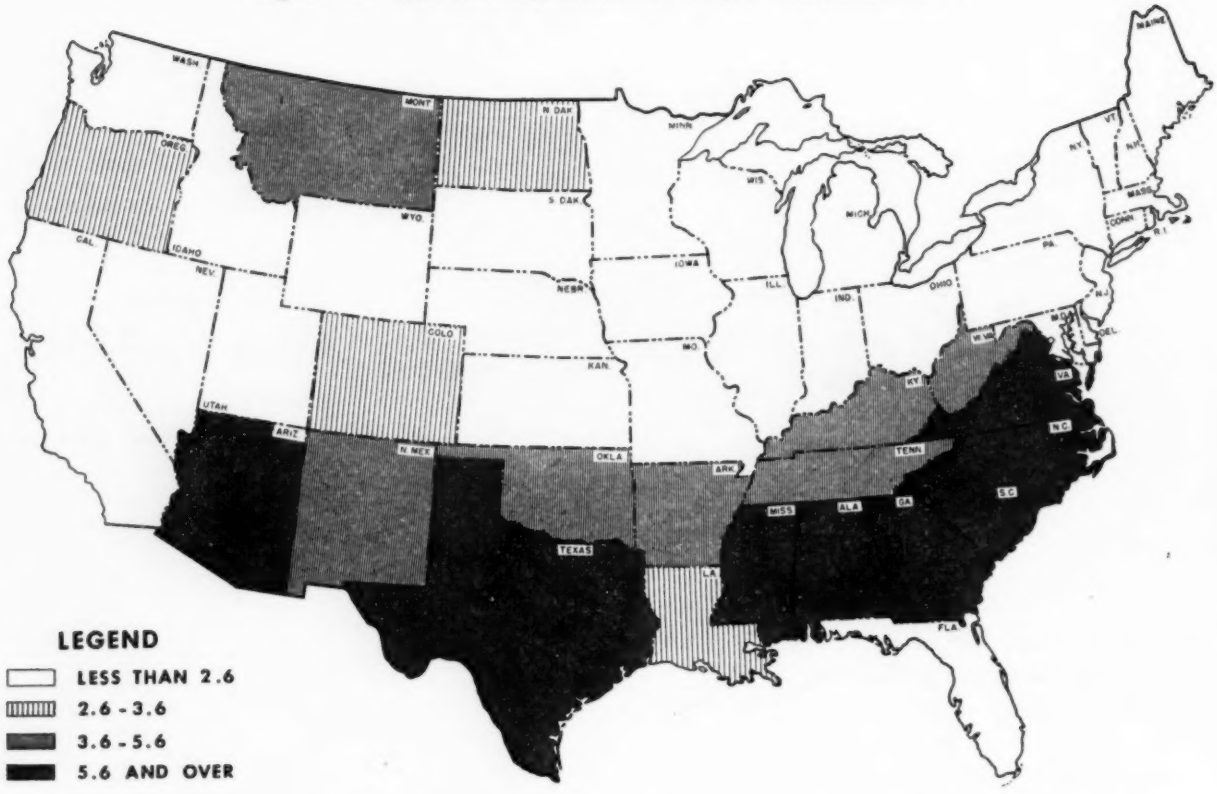
Figure 4. Reported diphtheria cases per 100,000, 1951.



country (England and Wales) can be foreseen as a very real possibility within the next few years, providing there is no slackening in the immunization efforts."

Programs and Research

Measles, in contrast to diphtheria, has not shown a downward trend, and we have just gone through one of the greatest epidemics in the history of the Nation. Why should measles be reported? The question is raised over and over again, and invariably the point is made that there are no control measures for this universal childhood disease. Nevertheless, the use of gamma globulin may minimize or defer the disease in the very young, among whom the great proportion of measles deaths occur. In the United States, among children under 5 years of age, measles accounted for 612 deaths in 1949 and for 7,579 deaths from 1940–49. Two-thirds of the deaths from measles occur in children less than 5 years of age. In a well-ordered health jurisdiction, individual case reports of measles enable follow-up for administration of gamma globulin to young children who have been exposed. Even though measles is under-reported, the data are useful for recognizing epidemic years during which the hazard to young children should be given special attention.

Epidemiologists and mathematicians have postulated various theories during the past 100 years to explain the dynamics of the spread of diseases. Measles is a universal disease, is easily diagnosed, and presumably is caused by a virus that has reached an extraordinarily stable balance with the human race. Measles data have been useful in the study of epidemics and provide a tool for development of mathematical models of crowd infections which may yield an insight into the dynamics of other infectious diseases (*3*, *4*).

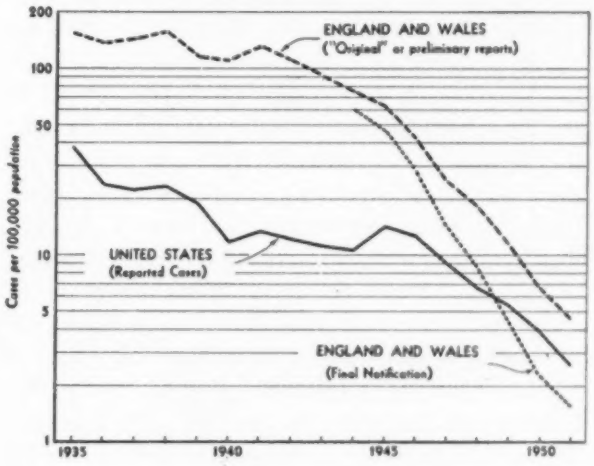
There have been a few objections to notification of poliomyelitis based on the same argument that there are no effective control measures. However, if poliomyelitis were removed from the list of reportable diseases in all States, an informal reporting system would develop overnight. Newspapers, teachers, various business enterprises, hospitals, nurses organizations,

and other agenices would collect, pool, and exchange information on the occurrence of the disease, not because these agencies have control measures which they could institute, but because poliomyelitis is a disease of both local and national interest, and that interest will be satisfied with or without an orderly reporting system.

Reported case data on poliomyelitis are essential for determining areas for current field investigations. The National Foundation for Infantile Paralysis in its extensive program of using gamma globulin as a prophylactic agent is depending upon the established reporting system to pinpoint areas in which to conduct its studies. Study of the frequency of occurrence of reported cases for past years by geographic locations, by urban-rural classification, by age, by sex, by population-size groups, by date of onset, by race, and by other categories have all been valuable; and other aspects of the frequencies and distribution of the reported cases are now being examined in an attempt to gain further insight into the behavior of this disease.

For some diseases of poorly defined etiology, it is known in advance that the reported case data will be of no value in appraising the extent of a specific disease problem, but the reported data may lead to a better definition of the components of the disease complex. For years, the term infectious encephalitis has served as a means for the collection of information on a variety of symptomatic conditions. Although heterogeneous, these data have been a starting point for investigation in one area and another. Thus, in the western States, the arthropod-borne encephalitides form an important portion of these data, and in these States there has been increased field study of the epidemiology of viral encephalitides and the ecology of possible vectors, especially in their relationship to the development of irrigated areas and water impoundment projects. On the other hand, in other sections of the country, study of the data has led to the recognition of quite different etiological agents (*1*). In these sections the reported data reflect almost entirely encephalitic conditions following attacks of measles, mumps, influenza, and other diseases. The case report is essential for the

Figure 5. Reported diphtheria cases per 100,000 population, United States and England and Wales, 1935–51.



epidemiological follow-up of the individual case of encephalitis that is needed for long-range study of this complex disease entity. Recent study of the reported data has led to recommendations for revisions and improvement in the international statistical classification of infectious encephalitis reports.

Collateral Evidence Useful

Sometimes morbidity data have been patently in error, and, in the instance of reported malaria data, the error was vividly demonstrated by procedural changes instituted by one State on the advice and suggestion of epidemiologists who suspected a disparity between the number of cases reported and the actual incidence of the disease. The evidence gathered by epidemiologists and other field workers during the past two decades provides the means for an orderly interpretation of the reported data.

During the thirties, malaria was highly endemic in much of the South, and surveys conducted in malarious areas during that period showed parasite rates of up to 50 percent in children, but the number of cases reported was only a small fraction of those indicated by these rates of parasitism (*2*). Malaria during that decade was clearly under-reported. From about 1938 to 1943, laboratory evidence indicated that the disease declined much more rapidly than shown by the reported figures, and from 1943 to 1947, while malaria was decreas-

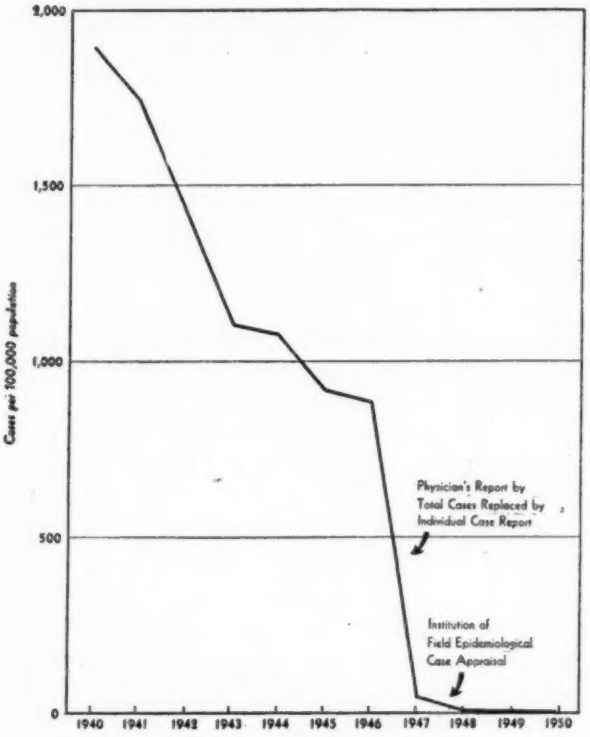
ing rapidly in States where eradication programs were in progress, other areas of the country showed an increase resulting from importation of malaria by veterans of World War II.

The reported morbidity figures for 1947 indicate a precipitous decline, and while it would be encouraging to explain the recent drop on the basis of effective malaria control measures, the sequence of events in Mississippi suggests that changes in reporting procedures are a more likely explanation for the accelerated decline. Figure 6 shows the annual reported incidence of malaria in Mississippi from 1940 through 1950. Prior to 1946, the physician's case report in Mississippi, as in some other States, permitted reporting of total number of cases by disease, but not by individual case report. On January 1, 1947, this form was replaced by an individual case report. The decrease in the number of reported cases of malaria is extraordinary—a drop from 881.2 to 44.0 per 100,000 population. A year later in that State a procedure was instituted for field investigations to enable individual appraisal of diagnosis of reported malaria cases, and a second notable reduction in the annual incidence rate resulted—from 44.0 to 5.8 per 100,000. Texas is the only remaining traditionally malarious State whose reporting system does not require identification of the patient in reported malaria cases, and there is no question that malaria is grossly over-reported in that State.

In 1950 field evidence and reported cases pointed to a very low level of malaria in the United States. However, in the spring of 1951 many cases were reported by distinctly non-malarious States such as Colorado, Massachusetts, Michigan, Minnesota, Oregon, and Wisconsin. Epidemiological follow-up indicated that a new problem has been introduced into the national malaria picture. The increased number of malaria cases represented importation of malaria by veterans returning from the Far East. Thus, some changes in reported data may be readily explained by alteration in reporting procedures; in other more important instances, changes in reported data may indicate new and authentic disease problems in areas where they did not exist.

Inherent in the system of reporting diseases are numerous flaws, such as over-reporting,

Figure 6. Annual reported incidence of malaria in Mississippi, 1940–50.



under-reporting, incomplete reports, incomplete coverage, and misdiagnosis, which may result from such factors as the attitude of the private physician toward reporting, incomplete etiological definition of reportable disease entities, variation in clinical diagnosis according to local experience with infectious diseases, variation in follow-up and verification of physicians' reports, variation in use and verification of supplementary reports—school and public health nurses' reports, laboratory reports—and variations in laboratory procedures and the criteria selected for querying physicians for case reports (*6*). Some of the defects may be eliminated gradually through a study of the particular disease in specific areas, but other flaws will probably always remain. Because of these imperfections, errors may be made in interpreting case reports unless they are supplemented by data available from hospitals, military records, medical insurance plans, laboratory and epidemiological investigations, and study of mortality, ecological and demographic data. However, the valuable inferences afforded by analyses of morbidity data are lost to

those who would first pursue the will-of-the-wisp of complete and accurate reports as a sine qua non for serious consideration of reported data on acute communicable diseases.

The use of morbidity data in long-range studies and in administrative planning requires finesse and patience. But along with shoe-leather epidemiology, case reports are essential for the control of communicable diseases.

REFERENCES

(*1*) Albrecht, R. M.: Study of reported cases of acute infectious encephalitis in upstate New York. Unpublished.

(*2*) Andrews, J. M., Quinby, G. E., and Langmuir, A. D.: Malaria eradication in the United States. Am. J. Pub. Health **40**: 1405–1411 (1950).

(*3*) Hedrick, A. W.: The corrected average attack rate from measles among city children. Am. J. Hyg. **11**: 576–600 (1930).

(*4*) Hedrick, A. W.: Monthly estimate of the child population "susceptible" to measles, 1900–1931. Am. J. Hyg. **17**: 613–636 (1933).

(*5*) Logan, A. P. G.: Recent trends of diphtheria. Bull. Ministry of Health and the Pub. Health Lab. Service (London) **2**: 50–56 (1952).

(*6*) Serfling, R. E., and Sherman, I. L.: Problems in improving morbidity data as a tool for epidemiological research. CDC Bull. **10**: 24–27 (Oct. 1951).

(*7*) Weinstein, Israel: An outbreak of smallpox in New York City. Am. J. Pub. Health **37**: 1376–1384 (1947).

Shipment of Animal Disease Organisms

Recent instances of illegal movement of animal disease organisms and vectors in interstate commerce have prompted the U. S. Department of Agriculture to warn that "no organisms or vectors shall be imported into the United States or transported from one State or Territory or the District of Columbia to another State or Territory without a permit issued by the Secretary and in compliance with the terms thereof." These terms specify that such shipments must serve the public interest, with ample safeguards provided to protect against the further dissemination of such agents.

Conditions under which restricted organisms and vectors can be moved by permit are explained in the Department's Bureau of Animal Industry Order 381, Part 122, entitled "Rules and Regulations Relating to Viruses, Serums, Toxins, and Analogous Products, and to Certain Organisms and Vectors." All laboratories, research institutions, and others dealing with animal disease organisms and vectors are requested to comply with this order.

Applications for permits shall be made in advance of shipment and each permit shall specify the name and address of the consignee, the true name and character of each of the organisms or vectors involved, and the use to which each will be put. Further information and applications for permits may be obtained from the Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

New Structure of Nursing Organizations

ALMOST 10 years of effort by nurses to simplify and improve the structure of their professional associations culminated last June when more than 6,000 nurses at the 1952 Biennial Nursing Convention voted to consolidate their organizations into two major national groups. Of the five national professional nursing organizations existing in 1952, only one—the group representing industrial nurses—remained outside the new structural plan.

The first national nursing organization was founded in 1893; by 1942 there were six. During World War II and the postwar years, these organizations were coordinated first through the National Nursing Council for War Service and later through a joint board of the six organizations. Considerable effort was required for the coordination of their activities in order to prevent duplications and gaps in services. Moreover, members of related professions and the general public were confused as to the respective functions of the organizations. The nursing profession soon recognized that reorganization was in order and set about finding a new structure.

In 1944 the boards of the American Nurses' Association, the National League of Nursing Education, and the National Organization for Public Health Nursing voted to make a survey of the "organization, structure, administration, functions and facilities" of their groups "to determine whether a more effective means could be found to promote and carry forward the strongest possible program for professional nursing and nurses." The Association of Collegiate Schools of Nursing and the National Association of Colored Graduate Nurses joined in the study during 1945. A formal study and report were made in 1946 by a firm employed for the purpose. From that time until 1952, nurses everywhere, through their local, State, and national committees, worked at designing a new structure for the organization of their profession.

A plan for a single, all-purpose association had some proponents, but the establishment of such an organization presented problems. Nonnurse participation in organizations was recognized as desirable. Certain functions, such as those relating to the setting of standards, however, were considered to be the prerogative of an all-nurse association, and the International Council of Nurses requires that its national constituents be comprised solely of nurse members. Consequently, a plan for two organizations evolved. One, much like the existing American Nurses' Association, would have nurse members only; the other, to be called the National League for Nursing, would have both nurses and other persons as individual members as well as agency and institutional members. The first would be concerned primarily with the individual nurse and her professional welfare and standards; the second, with community nursing services and education to prepare nurses for these services.

At the Biennial Convention of 1952, the National League of Nursing Education, the National Organization for Public Health Nursing, and the Association of Collegiate Schools of Nursing approved an action disbanding their organizations and combining most of their former functions under the new National League for Nursing. Also at this convention, changes were made in the bylaws of the American Nurses' Association, and a means for cooperation between the altered American Nurses' Association and the National League

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This summary was prepared by the office of the Chief Nurse Officer, Public Health Service.

for Nursing was formulated. The National Association of Colored Graduate Nurses had gone out of existence several months previously and its functions assimilated in other organizations. The American Association of Industrial Nurses voted not to disband. At present, then, there are three national nursing organizations.

American Nurses' Association

The following are the major activities to be carried on by the American Nurses' Association:

1. Define qualifications for nurse practice in the various occupational groups and for specialities within those groups.
2. Recommend standards for nurse practice in such fields as public health, industrial hygiene, nursing education, private practice, and nursing administration.
3. Promote legislation and speak for nurses on legislative action concerning general health and welfare programs.
4. Take periodic inventories of the Nation's nurse resources.
5. Promote and protect the general welfare (economic, professional, and social) of nurses.
6. Provide professional counseling service regarding employment to individual nurses and to their employers.
7. Act as spokesman for nurses with the public and with official groups (professional, governmental) on a State, national, or international basis.
8. Serve as official representative of American nurses in the International Council of Nurses.

Four sections of the original American Nurses' Association are continued—general duty, private duty, institutional nursing service administrators, and industrial nurses. Three new sections have been added—public health nurses, educators, and special groups, which include nurses who do not come under any other section, such as office nurses and nurse anesthetists. State organizations will be similar to the national organization, and sections will send representatives proportional in number to their membership to the American Nurses' Association House of Delegates, the official voting body which meets every 2 years.

The *American Journal of Nursing* will continue as the official organ of the American Nurses' Association.

National League for Nursing

Nurses and other citizens, both as individuals and representatives of community, health, and educational agencies, are members of the new National League for Nursing. This organization will:

1. Work with allied professions and other interested groups to help communities to meet their nursing needs.
2. Promote the organization and improvement of nursing services in communities, including defense areas where services are often woefully inadequate.
3. Study the kind of education nurses need to give good nursing service.
4. Promote the improvement of educational programs in nursing, and provide accreditation of such programs.
5. Give advisory service to community nursing agencies and counseling service to colleges, universities, and communities regarding the establishment of educational programs in nursing.
6. Interest young people in choosing nursing as a career; test and guide those who are interested so that the ones best suited are selected.

The league has two divisions—nursing services and nursing education—each of which has two departments. Public health nursing and hospital nursing are the departments of the first division; baccalaureate and higher degree programs and diploma and associate degree programs are in the second division.

The committees and services in the National League for Nursing include: Committee on Careers in Nursing, which is promoting the recruitment of student nurses; National Committee for the Improvement of Nursing Services; Committee on Nursing in Medical Care Plans; Joint Committee on Practical Nurses and Auxiliary Workers in Nursing Services; National Nursing Accrediting Service (for nursing schools); Advisory Nursing Service for Orthopedics and Poliomyelitis; and Tuberculosis Advisory Nursing Service.

Eligible for individual membership in the league are registered nurses in all fields of nursing; members of allied professions, such as physicians, hospital administrators, public health administrators, and educators; members of boards and committees concerned with nursing; members of boards and staffs of hospitals and public health agencies which have nursing service programs; and others interested in standards for community nursing service and nursing education. Among those eligible for agency membership are visiting nurse associations; public health nursing services in health departments, schools, and other community agencies; nursing services in industries, hospitals, and other institutions; and both basic and advanced nursing schools.

State leagues for nursing are now being formed all over the country. In general, they have the same divisions, departments, and committees as the National League. Individual members join the national organization through the State organization if such exists. Agency members join the national organization directly. Non-nurse members are entitled to membership on boards and committees and are eligible for election to all offices except those of president and first vice president. Individual members join the department of their choice and vote as members of that department for their own and general officers. State leagues may have district or local branches.

Official Publications

Nursing Outlook, which will begin publication sometime next year, will be the official organ of the National League for Nursing. This, the *American Journal of Nursing*, and the new journal *Nursing Research*, which first appeared in June 1952, will comprise the official journals of the new professional organizations. *Nursing Outlook* will absorb *Public Health Nursing*, the journal previously published by the National Organization for Public Health Nursing.

The American Nurses' Association has memberships approximating 180,000. The National League for Nursing has more than 20,000 individual members transferred from other organizations and is gaining membership daily. Those who joined before September 30, 1952, are charter members of the new organization. Most nurse members of the National League for Nursing will probably also be members of the American Nurses' Association. Membership in the league will provide additional opportunity for community service.

The president of the American Nurses' Association elected at the Biennial Convention in 1952 is Elizabeth Porter, and the executive secretary is Ella Best. The president of the National League for Nursing is Ruth Sleeper, and the general director is Anna Fillmore. The address of the headquarters of both organizations is 2 Park Avenue, New York City.

Yellow Fever Vaccine Production

Yellow fever vaccine, produced exclusively by the Public Health Service since 1942 in order to meet emergency wartime needs, will be manufactured in the future by the National Drug Company of Philadelphia, the Public Health Service announced jointly with the Armed Services Medical Procurement Agency in October.

This step, following conferences with many of the major pharmaceutical houses in the United States, is in accordance with Public Health Service policy of withdrawing from the manufacture of biological products in favor of the pharmaceutical industry when large-scale production becomes feasible.

Manufacture of the vaccine by the private firm does not alter the regulations governing distribution. All eligible consumers now receiving the vaccine may continue to do so.

PHS publications

Patients in Mental Institutions, 1949

This report presents statistics on patients in 199 State, 49 county, 1 city, and 225 private hospitals for mental disease; 16 psychopathic hospitals; 111 general hospitals with psychiatric facilities; and 99 public and 125 private institutions for mental defectives and epileptics. It is based on the twenty-fourth Annual Census of Patients in Mental Institutions, the third such census to be conducted by the National Institute of Mental Health.

The data, based on schedules prepared by these hospitals and institutions, consist of both a bookkeeping account of the flow of patients into and out of the hospitals and institutions and statistics on certain characteristics of first admissions and discharges, overcrowding, personnel, and expenditures.

It also contains discussions of the scope and method of the survey and the classification of reporting units, a definition of terms used, and the limitations of the data presented. There is also a brief historical review of data for the period 1940 through 1949 concerning resident patients, first and all admissions, discharges, and deaths in mental hospitals and institutions.

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Patients in Mental Institutions, 1949. (Public Health Service Publication No. 233.) 1952. 114 pages; charts. 55 cents.

Health Services In the Structure of State Government, 1950

Part I—Administrative Provisions for State Health Services

All State governments consider public health one of their major functions. The States differ, however, in the way they provide services. This publication brings together information regarding health services currently provided by State governments and differences in their public health organizations, methods of administration, scope of activities, policies, and resources.

This is the fourth edition of bulletin 184, containing data on State health organization and administration, each State being surveyed every 10 years. For the 1950 edition, the survey was limited to activity by State governments. No information was sought regarding local services. Therefore, the study does not present a picture of the total services received by the public, but rather it describes the manner in which the participating State agencies function in providing—either directly or through some other organization—health services for which they are responsible. The study constitutes the most complete source of information available on State health organizations.

The entire report is being published in four parts, all carrying the same main title. The second, third, and fourth parts, which will be published later, are subtitled: II—General Services and Construction of Facilities for State Health Programs; III—Personal Health Services Provided by State Government; and IV—Environmental Health and Safety Services Provided by State Government.

Part I—the present publication—gives a general picture of State health services, including the extent of dispersion of responsibility among various agencies of State government, the identity of all State agencies participating in health activities, and major changes occurring since 1940 in program content and in the assignment of responsibility.

The tremendous growth in the kinds and volume of health services provided by State governments can be seen in the increase of funds expended and personnel employed. Almost a billion dollars was spent on health in 1949, an increase of about 250 percent over 1940 expenditures. The average per capita expenditure for the 48 States was over $6, more than three times the corresponding figure for the 1950 survey. The number of personnel, exclusive of part-time and institutional employees, increased more than 100 percent between 1940 and 1950, with State health departments employing by far the greater numbers.

Perhaps the outstanding disclosure made by this study is the high degree of dispersion of health functions throughout the structure of State governments, which is even more pronounced than at the time of the 1940 survey. In 1950 as many as 32 agencies in a single State were participating in some health activity, contrasted to the top figure of 18 a decade ago. On a nation-wide basis, for a single program there may be as many as 14 distinct types of agencies represented. Although there has been some effort toward consolidation within health departments of programs previously scattered among several agencies, new programs still tend to develop under a variety of auspices.

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Mountin, Joseph W., Flook, Evelyn, and Minty, Edward E.: Distribution of Health Services in the Structure of State Government 1950. Part I, Administrative Provisions for State Health Services (Public Health Service Publication No. 184). 1952. 64 pages; tables; charts. 40 cents.

Tie That Knot

This leaflet was designed as a thumbnail-size guide for planning the location of local health units. It illustrates diagrammatically how public health service areas can be delineated, and how hospital facilities and public health units can be integrated to provide health service coverage for all counties. Comparative statistics on present and suggested future health units are given.

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Tie That Knot. (Public Health Service Publication No. 185) 1952. 2-fold leaflet; illustrated. Available upon request from the Public Inquiries Branch, Public Health Service, Washington 25, D. C.

PHS publications

Report of Local Public Health Resources, 1950

Full-time local health services are basically important in maintaining a healthy population to meet the demands of national defense mobilization, but at the same time these demands are seriously handicapping State and local governments in their efforts to expand and strengthen local health services. This annual report, however, indicates that despite inroads upon personnel, it was possible to continue the operation of most local health units and to expand facilities and services slightly during 1950, although a marked gain in the number of organizations or areas covered was impossible to attain.

This analysis is based upon the "Report of Public Health Personnel, Facilities, and Services" submitted as of December 31, 1950, by 1,193 full-time health organizations providing local health services in 47 States and the District of Columbia. (Vermont has no full-time local health units.) The definition of a full-time local health unit was changed in 1950 to indicate not only the presence of a full-time health officer but also the provision of full-time services.

The report includes data helpful to health administrators in planning for the expansion of local activities. Personnel and selected facilities and services of local health jurisdictions are summarized in terms of the type of agency sponsoring the service. Information is included for all official health agencies providing service to local areas whether they are officially known as a department, unit, commission, or otherwise. Likewise, the analysis includes data on the public health facilities and services available on a free or part-pay basis through official agencies other than health and through voluntary agencies.

Existing full-time health organizations are exceedingly understaffed. Minimum staffing needs of reporting units approximate an additional 1,000 public health physicians, 10,000 nurses, 16,000 sanitation workers, and 1,400 clerical workers. The small gain (800) in total personnel employed in local health departments as of December 1950, compared to June 1949, is encouraging, but the rate of increase is far below that required to meet the demands of complete coverage.

The availability of adequate public health medical facilities is another important need of local health organizations. Certain facilities and services considered basic by most public health officials are not yet included in the program of many health departments. In several of the newer health fields, the official health agency has not undertaken leadership in sponsoring clinical services and facilities, but has depended upon other official agencies or voluntary agencies to supply services.

With respect to sanitation activities even of the most basic types, too many health departments indicate gaps in essential services. Pasteurization of milk has been widely but not yet universally accepted. Approved community sanitation facilities and services are not available to all nonfarm population. The training of food handlers in proper sanitation techniques is included as a health department function in relatively few areas.

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Report of Local Public Health Resources, 1950. (Public Health Service Publication No. 232) 1952. 75 pages; tables. Limited number of copies available from the Division of State Grants, Public Health Service, Federal Security Agency, Washington 25, D. C.

Fact Book on Aging

This booklet presents 21 charts and 35 tables on the personal characteristics, income, employment, living arrangements, and health of older persons in the population. Facing each chart is a short statement summarizing its essential meaning and linking the data to facts of related significance. The tables contain raw data for the charts plus additional information too detailed to be charted. The Fact Book contains basic information necessary for an understanding of the size, distribution, and characteristics of the aging population.

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Fact Book on Aging. Federal Security Agency, Committee on Aging and Geriatrics. 1952. 62 pages; tables; charts. 30 cents. Single copies available on request from Committee on Aging and Geriatrics, Federal Security Agency, Washington 25. D. C

Cancer Illness Among Residents of Chicago

The sixth in the series of 10 Cancer Morbidity Reports, this study reveals that the cancer incidence among residents of the Chicago area showed no real change from 1937 to 1947. These results differ from those obtained in five previously published studies, dealing with the metropolitan areas of Atlanta, Denver, New Orleans, Pittsburgh, and San Francisco, where more significant increases in cancer incidence were noted.

The study indicates cancer is primarily a disease of middle and late life. Two-thirds of all cancer patients in the Chicago area are over 55 and cancer occurs 100 times as frequently in persons over 65 as in children under 15. The rates are higher among females than among males from about 20 to 60 years of age, but during the early and later years of life the male rates are higher.

Charts and tables show the incidence, prevalence, and mortality rates; age, sex, and color differences; stage at diagnosis; survival rates; and statistics on hospitalization. Increases in reported illness from cancer were particularly noteworthy for the bronchus and lung sites, pancreas, and brain and nervous system. In contrast, reported incidence of cancer of the stomach, liver and biliary passages, and uterus decreased. In women, the most com-

mon cancers are those of the breasts, genital organs, and digestive system; and in men, the digestive system, respiratory system, genital organs, skin, and urinary tract.

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Cancer Illness Among Residents of Chicago, Ill. Cancer Morbidity Series No. 6 (Public Health Service Publication No. 152) 1952. 49 pages; tables; charts. (Not for sale.)

Cancer Illness Among Residents of Dallas, Tex.

Number 7 of the Cancer Morbidity Series reveals that cancer incidence among Dallas City and County residents increased 18 percent from 1938 to 1948, but during the same period cancer mortality for all residents increased only 2 percent. Among men there was an 8-percent increase in mortality and among women a 3-percent decrease.

The importance of early diagnosis is pointed up in the fact that when all cancer sites are considered, 65 percent of the cancer patients in Dallas County were diagnosed while the disease was still localized. When skin cancers are excluded from the total, only half of the remaining cancers were diagnosed while still localized. Ninety-three percent of these patients survived one year or longer. When diagnosis was made after regional involvement, 73 percent survived. Only 35 percent survived, however, when the disease was discovered after remote metastasis had occurred.

As in the previous survey, the Dallas report notes a relationship between cancer and aging. Cancer occurs 100 times as frequently in persons over 65 as in children under 15. On the other hand, 10 percent of all cancer patients in Dallas are under 35. Most common cancers in these younger persons are the leukemias and cancers of the brain and bone.

Following the pattern established in the first six reports, this publication presents charts and tables showing the incidence, prevalence, and mortality rates; age, sex, and color differences; stage at diagnosis; survival rates; and statistics on hospitalization and cases seen for check-up.

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Cancer Illness Among Residents of Dallas, Tex. Cancer Morbidity Series No. 7 (Public Health Service Publication No. 178) 1952. 46 pages; tables; charts. (Not for sale.)

Safe Water

Designed for those living on farms and in small communities which do not have a municipal water supply, this leaflet discusses three types of water systems (well, cistern, and stream), the ways in which they can become polluted, and how such pollution can be prevented. The reader is advised to consult his local health department to learn how he can protect his water supply from dangerous disease germs.

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Safe Water. Community Health Series, No. 2 (Public Health Service Publication No. 71) 1951. 3-fold leaflet. Illustrated. 5 cents; $1.50 per 100.

A Healthy Personality for Your Child

Written for parents to give them an understanding of the stages through which children grow emotionally from infancy to adulthood, this new publication of the Children's Bureau, Federal Security Agency, is a popular version of a part of the fact finding report prepared for the Midcentury White House Conference on Children and Youth.

The original report was the product of a committee which included doctors, psychologists, anthropologists, social workers, clergymen, delinquency experts, lawyers, educators, and specialists in youth employment, recreation, and child development. The popular version was written by Dr. James L. Hymes, Jr., professor of education, George Peabody College for Teachers, Nashville, Tenn.

"A Healthy Personality for Your Child" puts together what is generally accepted by authorities on how personality grows and how it is shaped. Beginning with infancy, it discusses the emotional needs of children, their attitudes and reactions, and the changes they go through during the years up to postadolescence. It is agreed that parents are the most important influence in their children's lives. Their role in shaping the children's personalities is discussed in relation to the various stages of development.

NOTE: A discussion aid, based on this pamphlet, for use of parents groups interested in exploring problems of emotional growth is available from the Children's Bureau without charge.

• • •

A Healthy Personality for Your Child. Children's Bureau, Federal Security Agency. Publication No. 337. 1952. 27 pages. Illustrated. Single copies available without charge, so long as the supply lasts, on request to the Children's Bureau, Federal Security Agency, Washington 25, D. C.

Safe and Sanitary Home Refuse Storage

As noted in the article "Refuse-Can Holders" in the August issue of *Public Health Reports*, this leaflet contains recommendations concerning the proper storage of home refuse. Stressing the protection to be gained against disease, accident, fires, and vermin, it outlines five simple steps for the householder. They are: (1) providing and using proper containers; (2) maintaining the containers in a sanitary condition; (3) placing the containers in the right place at the right time; (4) draining garbage and bundling bulky rubbish; and (5) where required, separating garbage, ashes, and rubbish. These steps are further amplified, with suggestions on types of storage cans and stands to set them on.

• • •

Safe and Sanitary Home Refuse Storage. (Public Health Service Publication No. 183) 1952. 2-fold leaflet, illustrated. 5 cents; $1.00 per 100 copies.

Health Manpower Source Book

Section I—Physicians

To meet the frequent requests for information on medical manpower, the Division of Public Health Methods, in cooperation with the Divisions of Dental, Nursing, and Engineering Resources, is preparing a comprehensive source book on health manpower. The first section of the source book, issued as a preliminary report, is concerned with physicians. It is based on material published periodically by the American Medical Association and upon various special surveys. The final report on physicians and about 18 other occupations in the health industry will include 1950 census data which are not yet available.

The preliminary report is composed almost exclusively of statistical tables on the country's physicians — geographic distribution, type of specialty, licensure information, graduates over a period of years, income, average patient load, data on group practice. There are 66 tables and the bibliography lists 132 references.

The estimated number of physicians in the continental United States at the end of 1951 was about 211,000, according to the American Medical Association and reported in the Source Book. In 1949 there were 121 active non-Federal physicians for every 100,000 civilian population. This is a slight decrease from the 1940 rate of 122 physicians per 100,000 population. There has been an increase in the numbers of physicians who reported a practice limited to a specialty. The Source Book points out that in 1949, nearly 63,000 (31 percent) reported that they were full-time specialists, in contrast to 11 percent in 1923 and 21 percent in 1940. Internal medicine, surgery, and ophthalmology-otorhinolaryngology accounted for more than half of the total specialists.

• • •

Health Manpower Source Book, Section I, Physicians, Preliminary. (Public Health Service Publication No. 263) May 1952. 70 pages, tables. 40 cents.

for the general public

Smallpox

The emphasis in this health information leaflet is on vaccination. The story of early epidemics and the development of our present form of immunization are reviewed. Facts about the disease include how it is spread, symptoms, and medical care. The list of precautions gives details on vaccination, when it should be done, and how often it should be repeated. Prompt reporting of cases of chickenpox is urged, as smallpox is often mistaken for the more mild disease.

• • •

Smallpox. Health Information Series, No. 27 (Public Health Service Publication No. 230). Reprinted 1952. 1-fold leaflet. 5 cents; $1.25 per 100.

Sunstroke, Heatstroke, Heat Prostration

Because of the number of people who succumb to so-called thermic fever, this leaflet is of particular importance during the summer months. It describes the three illnesses, their causes, and symptoms. First-aid instructions are given, stressing the importance of calling a doctor at once. Common-sense precautions for hot weather are given and the need for extra water and salt is discussed.

• • •

Sunstroke, Heatstroke, Heat Prostration. Health Information Series, No. 4 (Public Health Service Publication No. 176). Revised 1952. 1-fold leaflet. 5 cents; $1.25 per 100.

Home Care of the Sick

Since a majority of the persons who are sick in the United States today are cared for in the home, this leaflet presents valuable general information for the person giving home care. It covers the selection of the patient's room, the furnishings, sickroom equipment, bed and bed clothing. Instructions are given for changing patient's bed linen and for the preparation of the patient for the day. The leaflet also discusses the handling of communicable disease cases, and ways in which the attendant can be of help to the physician. Organizations and individuals who can give instructions in nursing care are suggested.

• • •

Home Care of the Sick. Health Information Series, No. 21 (Public Health Service Publication No. 70). Third printing, May 1952. 2-fold leaflet. 5 cents; $1.50 per 100.

Hay Fever

Hay fever is more than just an annoyance—it can be serious. This health information leaflet describes hay fever, its symptoms, and the various types of seasonal hay fevers. It discusses the diagnosis of hay fever by means of allergy tests, and treatment with injections and medicines. Other means of obtaining relief suggested are the removal of pollens from the air of the victim's room or a change of location. However, the reader is advised that a doctor should be consulted lest the patient leave one type of pollen only to encounter another to which he is sensitive.

• • •

Hay Fever. Health Information Series, No. 17 (Public Health Service Publication No. 208). Revised 1952. 1-fold leaflet. 5 cents; $1.75 per 100.

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Volume 67

and

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1952 index

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HERE IS PRESENTED the 116th issue of the Index to *Public Health Reports*. The indexes of the first three volumes of the *Reports*, 1878–79, 1887, and 1888, were included as an integral part of the index to volume 4. Thereafter, the index continued as an annual publication until 1900. Now after 52 years as a semiannual, it returns to its annual status, coincident with the change-over of *Public Health Reports* from a weekly to a monthly publication.

The index, too, retains its general character of author-title-subject entries of all material in *Public Health Reports*. However, after several years of division into an author index and a subject-title index, it is now a one-alphabet arrangement. The appearance of *(B)* after an author entry indicates the paper is a brief, an author-approved condensed version of an original paper.

In addition to entries for all material appearing in the monthly issues, the index carries author-title entries for Public Health Monographs published concurrently with volume 67.

A manuscript file of the index, more detailed and cumulative from year to year, is maintained and is available for consultation.

When binding volume 67 of *Public Health Reports* it is recommended that the front covers of each issue be included inasmuch as the pictorial material on the inside front covers is listed in the tables of contents as frontispieces and appears in the index. Inside back covers of the monthly issues can be removed for binding since the material printed there also appears on the inside back cover of this index.

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